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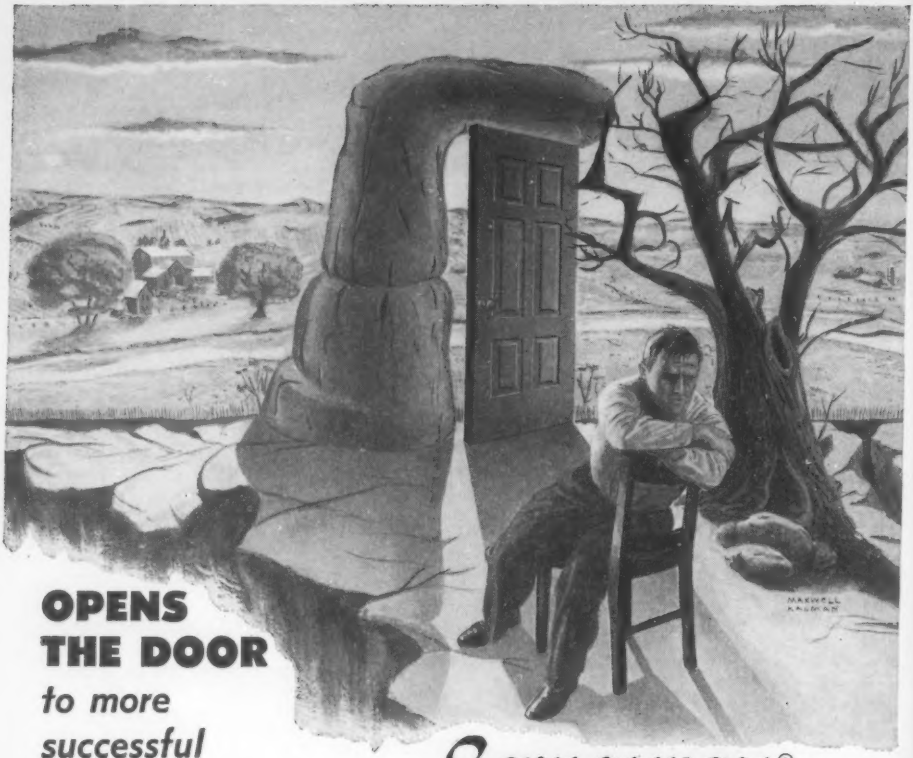

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MILITARY MEDICINE

ORIGINAL ARTICLES

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The 1956 Wellcome Prize Essay

Tuberculosis: Yet An Unconquered Disease

By

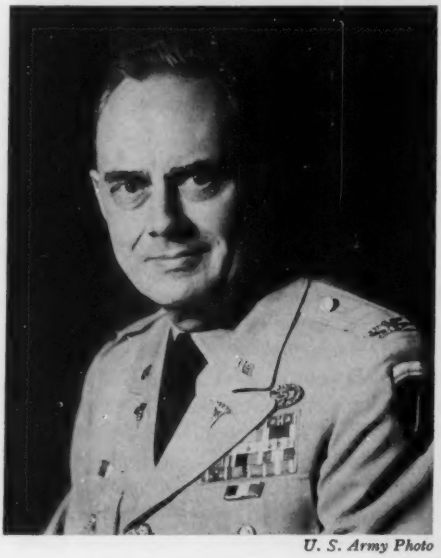
COLONEL EUGENE C. JACOBS, MC, *U. S. Army**

(With eight illustrations)

"The wise man rules Nature; not Nature the wise man"—PARACELSUS

OF ALL the infectious diseases, tuberculosis has been the most difficult to treat and to control.[1] Many infectious diseases run their course, and leave the survivors immunized against further attacks. Tuberculosis, likewise confers varying degrees of immunity upon its hosts, but it also leaves the majority of infected persons with virulent tubercle bacilli within their bodies. Since these tubercle bacilli are usually surrounded by pathological barriers within a few weeks of the onset of the disease, treatment with antimicrobial chemotherapy becomes more and more difficult as the disease progresses.

Tuberculosis has been an especially important disease in the military services because of the tremendous burden placed upon the military and veteran's hospitals, because of the prolonged disability suffered by the victims, because of the great expense to the Treasury of the United States, and because of the large loss of manpower, which in the event of an all-out war, would be the Nation's most critical resource. It has been



U. S. Army Photo

COL. EUGENE C. JACOBS

* Col. Jacobs was a delegate of the Army to the International Congress of Chest Diseases, and to the Conference of International Union Against Tuberculosis in Rio de Janeiro, Brazil, in 1952. He prepared papers on tuberculosis for presentation at the International Congress of Pediatrics, Copenhagen, Denmark, and at the International Congress of Chest Diseases, Cologne, Germany, in 1956. He is a Fellow of the American College of Chest Physicians (Governor for the Army, 1951-53). In 1954 he was the recipient of the Certificate of Merit, International Congress on Chest Diseases, Barcelona, Spain. He entered the Army in 1934. Now stationed at U. S. Army Hospital, Fort Monroe, Va.

estimated that the medical care of a single case of tuberculosis developed in the military services of the United States costs the Government between $60,000 and $70,000.

Several decades ago it was believed that tuberculosis could largely be controlled in the military services by preventing the entry of individuals having the disease.

Following this doctrine in World Wars I & II, the military services rejected between 5 and 10 per cent of all men examined because of active tuberculosis. In spite of the high rejection rates, medical care for individuals developing active tuberculosis in the military services during these wars cost the Government some $3,000,000,000.

Today this disease continues to present an epidemiological problem of tremendous magnitude for the world, for the United States and for the Military Services.

History

Consumption was known in India some 7000 years ago. It was described in the early records of China, Babylon, Egypt, Greece and Rome.[2] It was recognized by Hippocrates in 400 B.C., and he advocated a change of climate. The early books of the Bible make reference to it. Aretaens (100 A.D.) recommended sea voyages and country air. Galen in 180 A.D. had considerable interest in consumption, and his methods of treatment were followed for the next 1500 years. The French anatomist, Sylvius, was the first (1650) to associate the symptoms of tuberculosis with the tuberculous nodule. Auenbrugger described a method in 1800 of diagnosing phthisis by percussion. Laennec invented the stethoscope (1819), and correlated clinical findings with pathological changes noted at autopsy. He further recognized the various phases and pathological changes of tuberculosis as a single disease.

The correctness of this concept was disputed by Virchow, the German pathologist (1870), but was universally accepted when Robert Koch isolated the specific microorganism in 1882, and succeeded in reproducing the disease experimentally. In 1869 modern sanatorium treatment of tuberculosis was introduced by Brehmer and Detweiller in Germany, and in 1884 by Trudeau in America.

In 1890 Koch discovered tuberculin, the antigen produced by tubercle bacilli. From this date on, our knowledge of tuberculosis has rapidly increased.

Koch noted that when dead cultures of bacilli were injected at intervals of one or two days into tuberculous animals, that a remarkable improvement took place. The ulcerating site of inoculation became smaller and eventually formed a scar such as never occurred without such treatment. The swollen lymph glands became smaller, the nutrition of the animal improved, and the disease became quiescent, providing it had not already advanced too far. The animal did not go rapidly down to death as was usual. These observations furnished Koch a basis for producing a remedy against tuberculosis. He reasoned that tuberculin, an antigen, acted as a catalyst and stimulated cells of the host to produce antibodies. He then announced that tuberculin was a cure for tuberculosis. Unfortunately Koch believed to obtain a cure, it was necessary to give sufficient tuberculin to produce some degree of necrosis about the lesion.

Shortly, the use of tuberculin treatment of tuberculosis became rather widespread throughout Europe. Since it was necessary for each physician to make his own tuberculin, as might have been expected, not all of the cases of tuberculosis were successfully treated. Some cases became worse, and some cases died. However, reports of the British Medical Journals in 1890 and 1891 indicated that for each case that disease killed or made worse, that many cases showed considerable improvement. Considering the varying potency of the tuberculin used, the lack of a standard method of administration, and the tremendous doses given, the results were quite surprisingly good.

In 1891 Virchow autopsied some 30 cases of tuberculosis who had died following tuberculin therapy. After completing his

studies of these cases, he reported that at least fifty per cent of these patients would have died of their disease, whether or not they had received any treatment. In some of the remaining cases, Virchow believed that the tuberculin therapy had produced a spread of the disease. He noted perifocal inflammatory reactions about the tuberculous lesions. He reasoned that the increased vascularity about these lesions had liberated tubercle bacilli, and had permitted a spread of the disease to the adjacent tissues. In a few cases he had noted a miliary spread of the disease. Virchow was quick to condemn tuberculin as a dangerous type of therapy, and it soon fell into disrepute, except for the ophthalmologists and a few heroic phthisiologists. Yet, the tuberculin skin tests have remained as the most accurate and the most valuable means of diagnosing early cases of tuberculosis.

Roentgen's discovery of the X-ray in 1895 was to become of utmost importance as an aid in establishing the diagnosis and in determining the progress and the prognosis of tuberculosis.

Prior to 1900 the diagnosis of pulmonary tuberculosis had been the equivalent of a death sentence. The standard treatment at that time had been an air-tight room, many warm blankets and a hot stove.

After 1900 fresh air became the treatment of choice. Porches were added to hospitals and sanatoria. Patients resided out-of-doors 24 hours a day, month after month and year after year. For a short time in England there was a movement to prevent physical decay due to prolonged inactivity of tuberculous patients. After a prescribed period of rest, they were placed upon graduated regimen of work. A similar pattern was established for athletics.

In this country, bed rest, fresh air and good nutrition became the treatments of choice, primarily because the phthisiologists had very little else to offer. Pneumothorax became a rather popular method of offering localized rest to areas of diseased lungs, but was not without danger.

Anti-tuberculous Chemotherapy

It was not until the late 1930s that the first effective antibiotic against certain infections, penicillin, even though not effective against tuberculosis, raised the hopes that another chemotherapeutic agent might be found with tuberculocidal properties. In rather rapid succession the following tuberculostatic agents made their appearance: sulphones, para-amino-salicylic acid, streptomycin and the isoniazids.

For a decade anti-tuberculous chemotherapeutic agents have generally produced excellent results in early acute tuberculosis, miliary disease, thin-wall cavities and in other lesions in which the blood supply has relatively remained good.[2–13] The complete disappearance of these acute lesions, when given chemotherapy, has often been quite remarkable. These agents have also produced life-saving effects in previously fatal forms of tuberculosis.

Yet, while the immediate results of treatment have been very encouraging, many limitations in the use of chemotherapy have become manifest. The more chronic forms of tuberculosis have failed to clear.[10] Many treated cases have relapsed within a few months. The continued use of antibiotics has caused micro-organisms to become resistant in a rather high percentage of cases,[12, 14] and, occasionally, symptoms of toxicity have appeared. While some of these limitations have been overcome by judiciously varying the dosages and combinations of various anti-tuberculous agents, it can be said that present antimicrobial agents can rarely be counted on to cure tuberculosis in the strict sense.[2, 3] Patients have even been seen to relapse while receiving uninterrupted, long-term original treatment therapy.[15] Patients have developed tuberculous meningitis after streptomycin-P.A.S. therapy for primary infection.[15] Viable tubercle bacilli have been demonstrated in tuberculous lesions after many months of chemotherapy.[15, 16, 16a] High proportions of bacterial populations within cavity formations and solid necrotic lesions have been

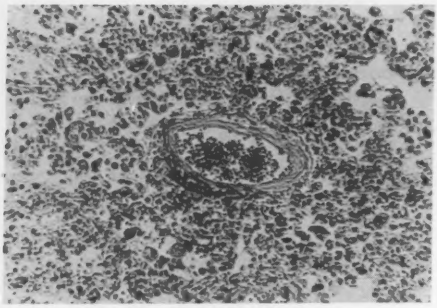


FIG. 1. Small vessel of normal lung. (Note normal blood cells throughout section.)

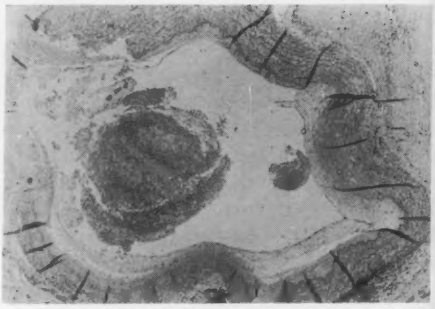


FIG. 3. Recent thrombosis of tuberculous lung. Note scarcity of normal blood cells. The thrombosis is interfering with circulation.

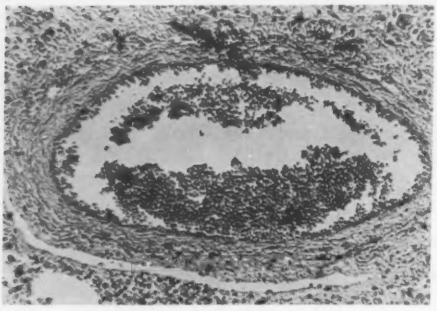


FIG. 2. Medium-sized vessel of normal lung. Note normal blood cells throughout the section. Normal circulation.

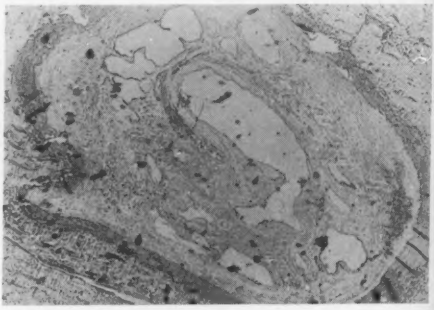


FIG. 4. Old thrombosis with recanalization. Tuberculous lung. Note absence of blood cells. Essentially no circulation.

found to be resistant.[16] These findings indicate that antimicrobial agents do penetrate chronic fibrosed and necrosed tuberculous lesions, but not in sufficient concentration to be bactericidal or tuberculostatic. In brief, chemotherapy is not sterilizing the chronic lesions of tuberculosis.[2, 5, 7, 10, 15, 16]

PATHOLOGICAL BARRIERS

Early in tuberculosis, the host attempts to protect himself from wide-spread tubercle bacilli by focalizing them into tubercle formations in many parts and organs of the body. Within a few days the host surrounds the tubercle formations with fibrous tissue, an actual capsule or mechanical barrier to prevent the spread of tubercle bacilli.[17–19] The blood vessels within the tubercle are destroyed, leaving the lesion avascular.[7, 20, 21, 24–26] The lumina of pulmonary arteries may be completely occluded by thromboses and/or by endarteritis obliterans.[7, 12, 24–26] Ischemic (caseous) necrosis is at least partially a result of these vascular changes. As the disease progresses, the avascularity, the necrosis, and the fibrosis become more and more complete. These pathological changes constitute definite barriers, which not only interfere with the nutrition of the involved areas, but also impede or even prevent antibiotics from reaching the contained tubercle bacilli.[2, 5, 7, 10, 12, 15, 16] (See Figs. 1-8).

Within each tubercle and each tuberculous lesion, a battle is waged between the Mycobacterium tuberculosis and the tissues of the immunized host. These battles may be won, lost or drawn. Undoubtedly, most bat-

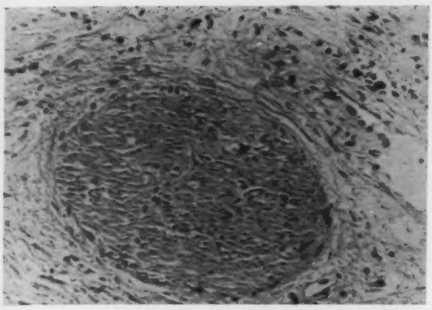


FIG. 5. Endarteritis obliterans in tuberculous lung. Complete occlusion of vessel. Note absence of normal blood cells throughout section. Essentially no circulation.

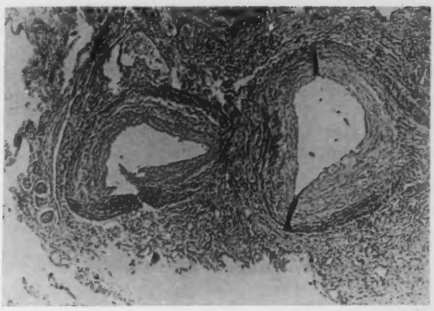


FIG. 7. Arteriosclerosis in tuberculous lung. Note absence of blood cells. Essentially no circulation through diseased vessel.

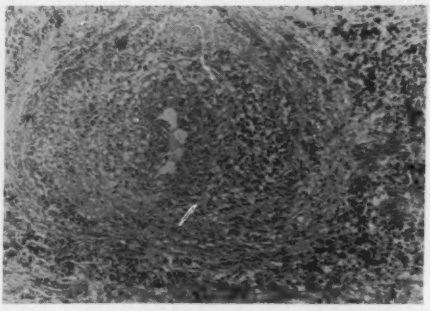


FIG. 6. Endarteritis obliterans in tuberculous lung. Almost complete occlusion of vessels. Note scarcity of normal blood cells throughout section of vessel. Essentially no circulation through the diseased vessel.

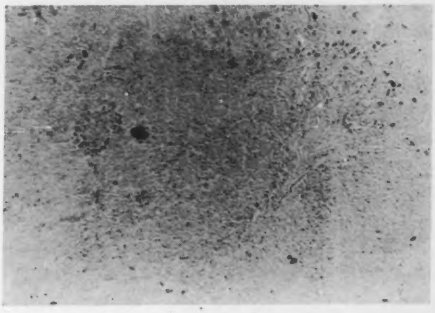


FIG. 8. Caseous necrosis in tuberculous lung. Complete avascularity with widespread ischemic necrosis. Note absence of normal blood cells. Complete absence of circulation and nutrition.

tles are won by the hosts of the tubercle bacilli (or many more of us would be dead from this disease). The cellular invasions of tuberculous lesions, the cellular production of enzymes[27, 28] and antibodies, the tissue hypersensitivity, plus the proper proportions of streptomycin, isoniazid, P.A.S., etc. are usually sufficient to overcome the focalized tubercle bacilli.[2-9]

The host does not always, however, win all of his battles; some battles may be lost. The micro-organisms are successful in pouring out sufficient bacterial products to interfere with the cellular invasions and the fibrous encapsulations.[17, 21, 28] The areas of the disease increase in size, and the disease is said to be "Active."

Many battles may be drawn. The host successfully isolates and seals-off his disease by a firm encapsulation plus thrombosis and endarteritis obliterans resulting in occlusion of the involved vessels. The lesions may be further fixed by the deposition of calcium. These lesions are said to be "Inactive." In effect there is a peaceful co-existence. The host regains or retains his health, but virulent micro-organisms may remain viable within these isolated lesions for many years.[1, 15, 16, 16a]

Some hosts may lose their battles years after they have been drawn. Relapses occur as the result of incomplete encapsulation, or because of breaks in the fibrous capsule. Tubercle bacilli then spread by lymphatic or

hematogenous means from the apparently dormant lesions. Whatever factors can loosen the capsular structure (hydration), or produce focal and perifocal hyperemia (physical efforts, tuberculin reactions, nonspecific inflammatory diseases, etc.) may result in reactivation of the previously dormant lesion.[23] The tuberculosis is then said to be "Reactivated."

As the tuberculosis progresses, the host continues his attempts to protect himself by throwing out more and more road blocks (pathological barriers) before the invading tubercle bacilli. There are increased cellular invasions and greater fibrous tissue production.[28] There are accompanying thromboses of the vessels and endarteritis obliterans. Medium size arteries end abruptly and large trunks are markedly reduced in size.[12, 24, 29, 30] The destruction of arteries may result in a marked decrease in the pulmonary circulation.[29] This is proportionate to the degree and stage of the tuberculous involvement. It is both permanent and irreversible, and results in diminished pulmonary function.[24, 29, 31]

While these pathological barriers were primarily intended by Nature as road blocks to delay and to isolate the invading tubercle bacilli, the barriers are also proving to be road blocks to present-day chemotherapy, and quite worrisome to the phthisiologists. It is becoming more and more evident that anti-tuberculous chemotherapeutic agents, even though they are both bacteriostatic and bactericidal in the blood stream and in normal tissues, are not sterilizing the more chronic lesions of tuberculosis.[2, 3, 5–7] Some phthisiologists now state that chronic necrosed and fibrosed tuberculosis are never cured in the strict sense by present-day chemotherapy. They have termed such lesions "Irreversible." The best that can be hoped for in lesions of this type is that the individual will be able to seal-off his lesions and thus prevent further spread of his disease. Some of the irreversible lesions, when accessible, can be removed by surgery, but the surgeon is never quite sure that he has removed all of the lesions, nor is he sure that new lesions will not evolve.[2] It is now generally conceded that the longer a lesion exists prior to chemotherapy, the less the chance there is of its being reversible. Amberson[10] has summed the problem up as follows: "The problem of treatment of pulmonary tuberculosis is made difficult because of the advanced stage of the disease in most cases."

Attempts to Penetrate Pathological Barriers

Several methods of penetrating the pathological barriers have been explored. Cavernostomy[4] has been used to drain pulmonary cavities, and to place a therapeutic agent directly within the cavity. "Improvement could be followed: the cavity loses its caseous aspect, develops more blood supply, becoming hyperemic, and the permeability is increased."[4] Potassium iodide,[32] antihistaminic agents,[33] detergents,[34] and enzymes[35–37] have been used in association with antibiotics in an attempt to soften tuberculous lesions and to permit the antimicrobial agent to act more effectively. Tuberculin[38–41] has been used in an attempt to make the tuberculous lesions hyperemic by producing perifocal inflammatory reactions. The purpose is to permit greater penetration of the antituberculous agents. Shamaskin et al.[5] have stated that, "Until another and more effective antibiotic against tuberculosis is discovered, we should change our mode of attack on this problem, and aim our efforts primarily at finding the means of penetrating more effectively the defenses behind which the tubercle bacilli may find protection in the human body. We must enable the drug to make adequate contact with the micro-organisms wherever they may be." Myers[2] has indicated that such procedures are worthy of further trial. To use his words, "Although laudible attempts are being made to bring the tubercle from caseous and necrotic areas by potassium iodide, etc., and to introduce drugs directly into the cavities, to date it would seem impossible to

reach all tubercle bacilli by such methods. In proper dosage tuberculin results in collateral hyperemia; however, there would appear to be little likelihood of restoring destroyed blood vessels."[2]

I believe that a conclusion can definitely be made at this time that the pathological barriers produced in the chronic forms of tuberculosis make it as "Yet an unconquered disease."

The World Tuberculosis Problem

In 1950 it was estimated that there existed some 40 to 50 million tuberculous persons throughout the world, of whom about 4 million died annually from their disease.[42] To make this figure a little more realistic, it is broken down into other units of time. It represents more than 10,000 deaths each day from tuberculosis, or more than 7 deaths each minute of the day from tuberculosis. This does not sound much like a conquered disease.

It has been estimated that ten per cent of the population of the Orient are walking around with infectious tuberculous lesions.[43] In China alone there are approximately 12 million active clinical cases of tuberculosis, of which 1,200,000 die each year. In Japan it is estimated that there are 1,500,000 active cases with 150,000 deaths annually. In the Philippine Islands there are about 1,800,000 active cases in a 20 million population. Penaflor[44] recently said that "Tuberculosis is our major health problem,—the number one killer of our people." Williams of England recently related that "Tuberculosis is the most important disease in the tropics."

Sample mortality rates of various countries during the period 1950-1955 are as follows:

(Minnesota	6.8 per 100,000)
United States	10 per 100,000
England	24 per 100,000
Scotland	32 per 100,000
France	43 per 100,000
Puerto Rico	47 per 100,000
Venezuela	90.5 per 100,000
Turkey	100-123 per 100,000
Japan	220 per 100,000

The United States Tuberculosis Problem

The most recent figures indicate that there are approximately 1,200,000 individuals in the United States with some form of tuberculosis. Of these there are about 400,000 active cases who present a sizeable reservoir for the spread of the disease. There are some 800,000 inactive cases who present a potential group for endogenous reactivation.[45, 46] It has also been estimated that there are approximately 50 to 60 million positive reactors in the United States who present a much larger group of possible endogenous reactivators.[43]

In 1950 tuberculosis ranked 7th as a cause of death (more than 24,000) in the United States, but in the age group from 17 to 37 years it is as yet the leading cause of death from disease.[45] It is a fact that the majority of people are escaping tuberculous infection until they reach adult life,[10] a matter of special importance to the military services.

At the present time there are approximately 102,000 beds set aside in the United States specifically for tuberculosis, and about 80,000 of these are kept occupied at all times.[47] The annual cost of tuberculosis control in the United States is calculated as $350,000,000 exclusive of construction expense and the cost of training, or about $1,000,000 daily.[47] These figures do not include non-effective losses due to unemployment, etc.

Mortality and Morbidity Rates in the United States

During the last 50 years, the mortality rates in the United States have declined from 200 per 100,000 to 15 per 100,000 persons. In another 10 years the mortality rate should be very close to zero. This decline has been attributed to many factors, some of which are: the isolation of tuberculous individuals, the bettering of living conditions, and most recently, the common usage of antimicrobial agents. Probably the greatest victory over tuberculosis to date

has been achieved by the veterinarians:[48]

> In 1900 tuberculosis among cattle was prevalent in the United States. The veterinarians by systematic tuberculin testing of all herds, and by slaughtering of all positive reactors, have essentially eradicated tuberculosis in cattle. There are now less than 0.2 per cent positive reactors.[48]

By the near eradication of tuberculosis in cattle plus pasteurization of all dairy milk, bovine tuberculosis is now a rarity in the human in this country.

The sizable reduction in the mortality rates in the United States might be thought to suggest that the victory over tuberculosis was nearly complete, but such a conclusion would be very misleading. The morbidity rates have not followed the mortality rates. As the lives of tuberculous persons have been saved and the mortality rates consequently lowered, the morbidity rates have remained rather constant, and at times have increased. The mortality statistic of former years has been kept alive to become a morbidity statistic of today. Actually the total number of known cases in the community representing potential source of reactivation or spread is greater than in previous years.[43] It is also a fact that many cases of tuberculosis are not known to the health departments until receipt of the death certificates.[45] It has been estimated that this situation might be as high as 25 per cent in some states. It is therefore believed that the U. S. morbidity rates may actually be much higher than presently estimated.

Even in the areas showing the lowest mortality rates, man lives in relation to tuberculosis in a state of unsteady equilibrium, which can readily be disturbed in favor of the disease.[41] While it is true that man is capable of developing remarkable resistance to tuberculosis, it is also a fact that he is very susceptible to the disease prior to developing of resistance.

The Military Tuberculosis Problem

During World War I the greatest cause for rejection for military service was tuberculosis. Of all the men examined, 9.3 per cent were found to be unfit for military service because of tuberculosis, as compared to 13.1 per cent rejection for all causes including tuberculosis. Yet, in spite of this high rate of rejection for tuberculosis, some 100,000 cases of latent tuberculosis flared up as a result of military service, and cost the Government more than $1,000,000,000 for medical care.[49]

During World War II, 6.7 per cent of the registrants were rejected for tuberculosis.[49] Again, in spite of high rejection rates, more than 3 in each 1,000 soldiers drafted developed active tuberculosis. It is estimated that tuberculosis in the military services during the last 15 years as a result of World War II has cost the Government another $2,000,000,000 for medical care. This figure does not include costs of hospital construction, losses due to absences from duty, etc. Nor does this figure include the medical care of the many thousands of registrants who were found unfit for entrance into military service by reason of active tuberculosis at the time of their initial examinations. Undoubtedly this medical care has cost several billions more.

At the present time in this country, the majority of persons are escaping tuberculosis until they reach adult life. Tuberculosis is presently the leading cause of death from disease among the age group from 17 to 37 years,[45] an age group of very great importance to the military services. Since World War II about 1500 new cases of active tuberculosis have been found each year in the Army alone,[50] and cost the Government more than $100,000,000 annually, or about $280,000 daily.

A Solution

Why wait until tuberculosis is irreversible to treat it? Why wait until tuberculosis is avascular and encapsulated, necrosed and fibrosed? We have anti-tuberculous agents which are considered to be both bacteriostatic and bactericidal at easily attained blood and tissue levels.[51–53] Why not

use these drugs when the tuberculosis is acute and has a relatively good blood supply?[2, 3, 7, 8] It is recognized that antibiotics are generally not effective in preventing an exposed or inoculated individual from developing tuberculosis, but they become effective as soon as the tuberculin hypersensitivity and host resistance develop.

When there was only one effective antibiotic against tuberculosis, streptomycin, and prolonged use of this agent resulted in the emergence of resistance to it in the micro-organisms as well as toxicity of the host, there was a definite tendency against its use in early and minimal tuberculosis. It was customary to keep it in reserve in order to be able to treat any resulting complications, or to protect the patient during contemplated surgery.

Now several efficacious anti-tuberculous agents are available. Having achieved the ability to avoid toxicity of the host, and to delay the emergence of resistance of tubercle bacilli to each agent by judiciously combining the antimicrobial agents, the reasons for avoiding antibiotics in minimal and uncomplicated tuberculous infections are no longer valid.

Method: Early Detection: Early Treatment

If tuberculosis in humans is to be eradicated, as it has been in cattle, certain requirements must be met. The disease must be detected early—before the lesions become irreversible. The disease must be treated early while the lesions are small and relatively vascular—while yet reversible.

Since as many as 25 per cent of the deaths from tuberculosis in some States have occurred in individuals who were apparently free from symptoms of tuberculosis, and who were unknown to the public health authorities prior to the death certificate, the urgency for early detection becomes very apparent.

In the past the diagnosis of tuberculosis has depended upon the complaints or symptoms of the patient, plus positive x-ray findings, plus a positive tuberculin test, plus positive sputums or gastric washings. By the time these criteria had been met, the disease was usually many months old. The lesions had become avascular and encapsulated, necrosed and fibrosed. The pathological barriers to therapy had become well-established. Treatment at this stage might delay the further spread of the disease, but would rarely cure it.

Actually *the tuberculin test is the most accurate and the quickest method to establish the early diagnosis of tuberculosis.* It has been the basis for the successful eradication of tuberculosis in cattle. For many years it has been used to confirm the diagnosis of tuberculosis in humans. It has stood the test of time. It is a simple test and cheap. It will become more valuable as the control of tuberculosis improves.[54] Its accuracy is close to 100 per cent in experienced hands. The intracutaneous method is much to be preferred.[54]

Myers[2, 3] was one of the first to realize the possibility of curing tuberculosis, if it could be diagnosed and treated sufficiently early. He pointed out that, "When the individual's tissues first become sensitive to tuberculin and for some time thereafter, the lesions of the primary complexes are small and vascular. In most cases the diagnosis can be made within two months after the bacilli invade the body." He advocated prompt chemotherapy as soon as the individual converts to a postive tuberculin, and prophesied a complete sterilization of the body. He realized that such a program would behoove every physician to determine the tuberculin status of everyone for whom he is responsible. He further stated that "Sterilizing the bodies of those who convert, should prevent meningitis, miliary disease, and the crippling deformities of bones, joints, etc."[2] It is very possible that such a program might prevent chronic tuberculosis and the pathological barriers which make the treatment with chemotherapy so difficult.

Waring[8, 9] has likewise advocated early

diagnosis and early treatment of tuberculosis. He stated, "Yesterday, it was said that ninety per cent of persons with minimal tuberculosis will get well anyhow on bed rest alone; therefore, chemotherapy should be kept in reserve until things go bad. This doctrine of complacency is all wrong. . . . Streptomycin does not diffuse readily into large fibrotic lesions. . . . Early and exudative lesions are more responsive to chemotherapy. . . . To my mind it follows with irresistible logic, the younger the child, the shorter the duration of the infection, the less the extent of the lesion, the more urgent the need of chemotherapy." He revealed a project in Denver which has been underway for 3 years, and further stated, "Their results thus far are consistent with my personal opinion that all cases of early 'uncomplicated' as well as 'progressive' tuberculosis in children should receive the benefits of early chemotherapy."[8] Waring reaches the following conclusion, "Recent tuberculin converters among highly exposed persons, with or without visable primary lesions or radiologic 'active minimal tuberculosis' whether children or adults should be treated with chemotherapy."[8] Myers and Waring are now advocating *chemotherapy for persons of all ages as soon as the tuberculin test is converted to positive.* Amberson[10] has reached similar conclusions, "Chemotherapy now can be relied almost uniformly to control the disease in its early acute phase, and the incidence of the serious complications has diminished dramatically. . . . The importance of early diagnosis and prompt treatment is obvious." A recent report of Myers[13] discloses that "Evidence is accruing to show that prompt treatment of recent converters . . . prevents acute destructive forms of tuberculosis such as meningitis and generalized miliary disease."

A Military Program

A program involving early detection and early treatment of tuberculosis in the military services is entirely feasible. It would be logical to place such a program under the joint supervision of the Preventive Medicine Divisions and the Professional Service Divisions of the Surgeons General's Offices.

Tuberculin tests would be made routinely on all individuals entering the military services and the results would be recorded upon the individual's Immunization Register (AGO Form 8-117).

Positive reactors would not be accepted for military service until thoroughly studied for possible active or latent tuberculosis. When and if accepted for service, positive reactors would be studied periodically as determined by the medical officer-in-charge for any evidence of activity.

Negative reactors would be retested on an annual basis, and especially after any suspicious illness or disease such as pneumonia. Negative reactors, who convert to positive after an illness or in the interim between periodic testings, would be quickly studied for any evidence of tuberculosis. Such studies should be completed within a matter of hours, not weeks or months. As soon as the physicians are satisfied that early tuberculosis exists, approved combinations and doses of chemotherapy would be initiated.

Mass tuberculin-testing for all of the military services would not cost as much as is presently being spent for routine chest x-rays, and would detect new cases of tuberculosis many days, weeks or even months sooner. The early detection and early treatment of only a few cases of tuberculosis would more than pay for the entire tuberculin-testing program. It might well be brought out at this time that "Mass chest x-ray survey is a poor approach to tuberculosis control. Positive radiographic findings lag well behind the onset of the disease."[55]

It is realized that this proposed program is not the final answer in tuberculosis. It does not attempt to conquer the serious forms of acute and chronic tuberculosis, but is an effort to gain control of them by preventing them. If successful, this proposed program could very well leave the military

population without tuberculosis, but would also leave it without any immunity against tuberculosis.

This proposed program as presented is but a single step which is believed to be in the right direction, and which is a definite attempt to gain control of a difficult and costly disease—a step which might permit the wise man to rule Nature as regards tuberculosis.

Summary

Of all the infectious diseases, tuberculosis has been the most difficult to control and to treat, because it leaves the majority of infected persons with virulent tubercle bacilli within their bodies.

Early in tuberculosis, the widespread tubercle bacilli within the body are focalized into tubercle formations, and these in turn are encapsulated with fibrous tissue, all in a matter of a few days. At the same time the blood vessels within the tubercle are destroyed, leaving the lesion avascular. As the tuberculosis progresses, thrombosis and endarteritis obliterans occlude any involved arteries, resulting in caseous (ischemic) necrosis of the tissue within the lesion. This fibrosis, this avascularity, and this necrosis constitute pathological changes which were probably intended by Nature as mechanical barriers to the spread of the Mycobacterium tuberculosis, but which are also proving to be barriers which impede or even prevent antibiotics from reaching the contained micro-organisms. These forms of chronic tuberculosis are now considered to be irreversible because they are rarely cured by present-day chemotherapy.

Tuberculosis has been an especially important disease to the military services, because of the prolonged disability suffered by the infected individual, because of the tremendous burden placed upon the military and veteran's hospitals, because of the great cost to the Treasury of the United States, and because of the large loss of manpower, which in the event of an all-out war would be this Nation's most critical resource. In spite of a decline in the U. S. mortality rates from 200 per 100,000 population to 15 per 100,000 during the last fifty years, tuberculosis in the military age group, 17 to 37 years, still remains the leading cause of death from disease.

It has been estimated that medical care of individuals developing active tuberculosis in the military services during the two World Wars cost the Government some $3,000,000,000. It has been estimated that at the present time more than 1500 new cases of active tuberculosis are found each year in the Army alone, and cost the Government more than $100,000,000 annually for medical care.

A solution is proposed. We have antituberculous agents which are considered to be both bacteriostatic and bactericidal at easily attained blood and tissue levels. Why not use them when tuberculosis is acute and still has a relatively good blood supply?

A program is proposed which would require tuberculin-testing of all individuals entering the military services. Positive reactors would not ordinarily be accepted for military services without a thorough study. Negative reactors would be retested upon an annual basis, and especially after any suspicious illness or disease such as pneumonia. Negative reactors who convert to positive in the interim between testing, or after an illness, would be quickly studied for any further evidence of tuberculosis. As soon as the physician is satisfied that tuberculosis exists, approved combinations and doses of chemotherapy would be initiated. Evidence is accruing to show that prompt treatment of recent converters prevents acute as well as chronic destructive forms of tuberculosis.

It is realized that this proposed program is not the final answer in tuberculosis, but merely a single step in an attempt to gain control of a difficult and costly disease by preventing the serious and irreversible forms. If successful, this proposed program could very well leave the military services without tuberculosis, but would also leave

the military population without immunity against tuberculosis.

It is firmly believed, and early evidence indicates that once the tuberculin-testing program is established for the military services, and followed by early treatment of recent converters, that the serious forms of acute tuberculosis, and the irreversible forms of chronic tuberculosis can be prevented, and the Government will be saved many millions of dollars.

ACKNOWLEDGMENT

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REFERENCES

[1] Myers, J. A.: "Outlines of Internal Medicine" (C. J. Watson's) Wm. C. Brown Co., Dubuque, Iowa. (Part I, p. 97), 1947.

[2] Myers, J. A.: "Chemotherapy in Tuberculosis" (Editorial) Dis. of Chest, 22:598, 1952.

[3] Myers, J. A.: "The Turning Point" (Editorial) Dis. of Chest, 25:459, 1954.

[4] Maurer, G.: "Cavernostomy and Tamponade of Pulmonary Cavities with Para-Amino-Salicylic Acid." Dis. of Chest, 16:676, 1949.

[5] Shamaskin, A., Des Autels, E. J., Sweany, H. C., and Zvetina, J. R.: "Streptomycin in the Treatment of Military and Meningeal Tuberculosis." Dis. of Chest, 16:765, 1949.

[6] Mertens, A., and Bunge, R.: "The Present Status of Chemotherapy of Tuberculosis with Conteben, a Substance of the Thiosemicarbazone Series." Am. Rev. Tuberc., 61:20, 1950.

[7] Jacobs, E. C. and Kuhns, D.M.: "Avascularity of Tuberculous Lesions." Dis. of Chest, 22:523, 1952.

[8] Waring, J. J.: "The Current Treatment of Pulmonary Tuberculosis." Dis. of Chest, 25:361, 1954.

[9] Waring, J. J.: "The Significance of Small Epidemics." Dis. of Chest, 28:170, 1955.

[10] Amberson, J. B.: "Evaluation of the Present-Day Treatment of Pulmonary Tuberculosis." Annals of Int. Med., 43:1209, 1955.

[11] Salkin, D. and Schwartz, J. A.: "Roentgenologic Changes of Lungs Associated with Isoniazid Therapy in Pulmonary Tuberculosis." Dis. of Chest, 26:255, 1954.

[12] Allen, A., Marcy, G. E., and Yu, J. K.: "Conventional Therapy versus the Continuous Concurrent Use of Streptomycin, Isoniazid and PAS plus early Surgery in the Treatment of Tuberculosis." Dis. of Chest, 28:537, 1955.

[13] Myers, J. A.: "Tuberculosis Among Nurses." Dis. of Chest, 28:610, 1955.

[14] Sweany, H. C., and Dunbar, F. P.: "The Problem of Bacterial Resistance in Antimicrobial Therapy of Tuberculosis." Dis. of Chest, 28:260, 1955.

[15] Small, M. J.: "The Modern Medical Treatment of Pulmonary Tuberculosis." Annals of Int. Med., 43:539, 1955.

[16] Medlar, E. M., Bernstein, S., and Reeves, F. C.: "The Demonstration of Streptomycin-Resistant Bacilli in Necropsy Specimens." Am. Rev. Tuberc., 4:449, 1951.

[16a] Hobby, G. L., Auerbach, O., Lenert, T. F., Small, M. J., and Vaughan, L. H.: "Recovery of tubercle bacilli from resected pulmonary lesions." Transactions of 14th Conf. on Chemotherapy of Tuberculosis. Atlanta, Georgia (p. 180-185) (Feb.), 1955.

[17] Anderson, W. A. D.: Pathology, C. V. Mosby, St. Louis (p. 257-8), 1948.

[18] Moore, R. A.: A Textbook of Pathology, W. B. Saunders Co. Phila. (p. 295), 1945.

[19] Auerbach, O.: "Pulmonary Tuberculosis after Prolonged Use of Chemotherapy." Am. Rev. Tuberc, 17:165, 1955.

[20] Karsner, H. T.: Human Pathology, J. B. Lippincott Co. Phila. (p. 235), 1949.

[21] Anderson, W.A.D.: Synopsis of Pathology, C. V. Mosby., St. Louis (p. 80), 1942.

[22] Char, R., and Savacool, J. W.: "Changes in the Arteries in the Walls of Tuberculous Pulmonary Cavities." Arch. Path. 30:1159, 1940.

[23] Savacool, J. W. and Char, R.: "Thrombosis of Pulmonary Artery" Am. Rev. Tuberc., 1:42, 1941.

[24] Steinberg, I., McCoy, H. I., and Dotter, C. T.: "Angiocardiographic findings in Pulmonary Tuberculosis." Dis. of Chest, 19:510, 1951.

[25] Rimini, R., Rodriguez, A., Burgos, R. et al,: "Contributions of Angiopneumography to Some Problems of Pulmonary Tuberculosis." Dis. of Chest, 22:539, 1952.

[26] Bell, E. T.: Textbook of Pathology, Lea and Febiger, Phila., (p. 177), 1947.

[27] Weiss, C., and Boyar-Manstein, M. L.: "On the Mechanism of Liquification of Tubercles." Am. Rev. Tuberc., 6:694, 1951.

[28] Pinner, Max,: Pulmonary Tuberculosis in the Adult, Chas. Thomas, Springfield, Ill. (p. 45), 1945.

[29] Birkelo, C. C. and Brosius, W. L.: "Roentgen Visualization of Pulmonary Arterial Circulation in Autopsy Material." Radiol. 31:261, 1938.

[30] Carvalho, L. de, Moniz, E., and Lima, A.: "L'Angiopneumographie et son application dans la tuberculose pulmonaire." La Press Medical, 40:1098, 1932.

[38] Curand and Richards, Am. Rev. Tuberc., 44:123, 1941.

[39] Woody, E., Jr., Johnson, H. E., Avery, R. C., and Crowe, R. R.: "Combined Effect of Potassium Iodide and Streptomycin on Far Advanced Pulmonary Tuberculosis." Dis. of Chest, 4:373, 1951.

[40] Millner, T., and Hurst, A.: "Tuberculosis and Antihistaminics." Dis. of Chest, 6:870, 1949.

[41] Gracie, E. J. and Bryson, V.: "Topical Detergent Antibiotics in Treatment of Tuberculous Sinuses." Dis. of Chest, 6:795, 1949.

[42] Cathie, I. A. B.: "Streptomycin-Streptokinase Treatment of Tuberculous Meningitis." Lancet, 256:441, 1949.

[43] Hazelhurst, G. N.: Streptokinase-Streptodornase in the Local Treatment of Suppurative Extrapulmonary Tuberculosis." Am. Rev. Tuberc., 71:1, 1955.

[44] Giraud, P. and Espinas, J. "La Streptokinase dans les Meningitis Tuberculeuses." Semaine d. hop, Paris, 28:1302, 1952.

[45] Cavoura, C.: "Results of Treatment of Tuberculous Meningitis with Streptomycin." Pediatrie, 37:548, 1948.

[46] Cairns, H., Smith, H. V., and Vollum, R. L.: "Tuberculous Meningitis." J.A.M.A., 144:92, 1950.

[47] Vivas, J. R. and Jacobs, E. C.: "Combined Streptomycin-Tuberculin Therapy in Pulmonary Tuberculosis—A preliminary Report." Bull., U.S. Army Med. Dept., 9:1, 1949.

[48] Jacobs, E. C. and Vivas, J. R.: Combined Streptomycin-Tuberculin Therapy in Pulmonary Tuberculosis," I A Pilot Study, U. S. Armed Forces Med. Jour., 1:115, 1952. II Methods of Treatment, U. S. Armed Forces Med. Jour., 2:267, 1952.

[49] Dubos, R. J. and Dubos, J. The White Plague —Tuberculosis, Man and Society, Little, Brown & Co., 1950.

[50] Tepper, L.: "Does Pulmonary Tuberculosis Continue to be a Chronic Problem." Dis. of Chest, 28:343, 1955.

[51] Penaflor, C.: "The Post War Tuberculosis Program." Dis. of Chest, 26:52, 1954.

[52] Stitt, P. G.: "The Rationale of Emphasis on Tuberculin Testing in a Tuberculosis Control Program." Dis. of Chest, 26:538, 1954.

[53] Public Health Reports: "Prevalence of Tuberculosis in the United States." Public Health Reports: 67:766, 1952.

[54] Long, E. R.: "Problems of Tuberculosis Control." Ann. of Int. Med., 37:1095, 1952.

[55] Myers, J. A.: "Prevention of Tuberculosis among Children without Use of BCG." Pediatrics, 7:793, 1951.

[56] Hayes, J. N.: Chapter on Pulmonary Tuberculosis. Frederick Tice's Practice of Medicine, W. F. Prior Co., Hagerstown, Md. (p. 561), 1954.

[57] Amberson, J. B.: R. L. Cecil's Textbook of Medicine, W. B. Saunders Co., 7th Ed. 1947.

[58] Garrod, L. P.: "The Bactericidal Action of Streptomycin." Brit. Med. Jour., 1:382, 1948.

[59] Garrod, L. P.: "Nature of the Action of Streptomycin on Tubercle Bacilli." Am. Rev. Tuberc, 6:582, 1950.

[60] Hedval, E., "Influence of Chemoantibiotic Treatment of Tubercle Bacilli." Dis. of Chest, 28:391, 1955.

[61] Jackson, D.: "The Value of Tuberculin Testing." A.M.A. Archives of Int. Med., 95:806, 1955.

[62] Dotter, C. T.: "Need for Long Acting Tuberculin Test." Dis. of Chest, 29:230, 1956.

Our New President

DOCTOR AMOS R. KOONTZ, our president for 1957, is a practicing surgeon in Baltimore, Maryland, and a colonel in the Medical Corps of the Maryland National Guard.

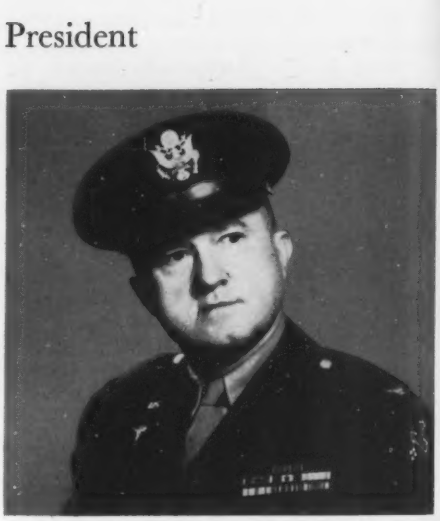
He was born in Marksville, Page County, Virginia, on February 12, 1890, son of Hubert L. and Annie Brown Koontz. His first ancestor in this country was Capt. Thomas Graves, who landed at Jamestown, Virginia, in January 1608. Graves became a member of the first legislative body in this country (the Virginia Assembly of 1619).

The Koontz side of the family was first represented in a group of German settlers in Virginia in 1711. They came as iron workers for mines which Governor Spottswood hoped to develop in Virginia. Instead of mine workers the men became land owners.

In 1920, Colonel Koontz, then a young physician married Besse Erving Stocking of Cleveland. This young lady was the daughter of a minister of Cleveland, Ohio. Her family was of New England ancestry. Miss Stocking was a graduate of Goucher College and of the Medical Art Department of the Johns Hopkins Medical School.

Colonel Koontz took his academic work at the College of William and Mary, and in 1910 received his A.B. and B.S. degrees with the honor of the key of Phi Beta Kappa. In 1911 he received his A.M. degree from the same college, and in 1950 was honored with the doctor of science degree by William and Mary.

The awarding of his medical degree is interesting in that Doctor Koontz, while a third year student in medical school at Johns Hopkins University volunteered to serve in World War I when that university organized Base Hospital No. 18 and went to France in the first convoy of troops—June 1917. This meant that the then medical student Koontz had to enter military service as a private. In April 1918 Private Koontz became Lieutenant Koontz, since his training qualified him for the degree of doctor of medicine which was awarded to him by Johns Hopkins University. Lieutenant Koontz was then transferred to the Presbyterian Hospital (New York) Unit which was serving with the British.



COL. AMOS R. KOONTZ, MC, NG, Md.

After World War I Doctor Koontz returned to Baltimore where he entered into the practice of medicine and surgery. From 1923 to 1940 he served as Regimental Surgeon (with rank of major) in the 110th Field Artillery, Maryland National Guard.

Then came World War II. Doctor Koontz went on active duty on November 4, 1940 as Medical Director of Selective Service in Maryland. In April 1942 he activated and commanded the 18th General Hospital (Johns Hopkins Unit) and took it to New Zealand and then Fiji. He became Surgeon for the U. S. Army Forces in New Zealand, commanded the 20th Station Hospital in Guadalcanal, and finally was Chief Surgeon for the U. S. Army Forces in the South Pacific Area. In December 1945 he returned to the United States. He had the distinction of being the only man to serve in the Johns Hopkins Unit in both World Wars, serving

as a private in World War I, and commanding the unit in World War II.

Colonel Koontz is Assistant Professor of Surgery, Johns Hopkins University School of Medicine. He is author of over 130 publications in surgical textbooks and surgical journals. He is Consultant in Surgery for the Surgeon General of the Army, and the Surgeon of the Second Army, and several hospitals in the Baltimore area. His membership in medical and surgical societies includes the American Medical Association, the American Surgical Association, the International Society of Surgery, the American College of Surgeons, and the Southern Surgical Association, this being only a partial list.

He is past president of the Maryland Academy of Medicine and Surgery, and the Baltimore City Medical Society.

Colonel Koontz brings to our Association his vast experience in medicine and surgery and military matters to lead and direct us in 1957.

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Presidential Address*

By
REAR ADMIRAL W. DANA, MC, USN

IT IS one of the duties of the p.esident of the association to keynote the convention. First and foremost in this pleasant obligation is the theme of welcome. Welcome especially to the distinguished representatives of friendly governments who have given so much of their time and energy to come to Washington to join with the Association of Military Surgeons of the United States in their effort to learn and disseminate up-to-date professional information of interest and value to our common preparedness and defense. It is my earnest hope that each of you will find here an atmosphere of genuine friendship and helpfulness and that when the formal activities of this convention have been completed you will carry home with you pleasant personal memories at which to warm your intellectual hands.

As most of you know, the very title "Association of Military Surgeons" is in considerable degree a misnomer. Certainly all of us are not surgeons; indeed, many of us are not really military by precise definition, but we do all adhere to and support the common objectives of the association which were stated fifty-three years ago in its charter as follows: "The object of the association shall be to increase the efficiency of its membership by mutual association and by the consideration of matters pertaining to the medical military service in the United States both in peace and war."

Just as with any other human activity, this association in its progress has come to expand and diversify its objectives and activities in related fields as needs arose and as a progressive membership endeavored to seize opportunities for greater service. So we have become really an organization of patriotic men and women with professional identification in the life sciences and having as our common goal the application of our joint scientific, managerial, and technical talents to the military situation. Any organization with a static program would soon cease to exist and deservedly so. At these meetings during the next three days we propose to point up our diversity as well as our progress and have accordingly chosen as the convention theme "The Expanding Horizons of Military Medicine." We know that the program presented† will be of the highest scientific quality and we confidently anticipate its great appeal to the younger and more inquiring type of mind.

Time was when the sole function of the military surgeon was the caring for war wounds on the field of battle. Unfortunately, military objectives in war still involve to a great degree the killing of adversary men or rendering them helpless through injury. There has been progress here too. Not only is it possible to injure vastly greater numbers of men with a single weapon, but there is increasing diversity in the kinds of weapons potentially available and, therefore, in the nature of producible injury as well as its extensiveness. Since this is so, it is but natural that those best equipped to understand man's response to injury will assume greater significance in the scientific aspects of military preparedness.

This audience knows that the Association of Military Surgeons is strictly a patriotic non-profit organization functioning in the interest of improving the profession of military medicine. It may come as something of a surprise to some of you that there are those who actually, and apparently quite sincerely, question the existence of such a professional entity. This question may be largely a matter of semantics, or such ideas might derive, I suppose, either from total lack of military

* Presented at the 63rd annual meeting of the Association of Military Surgeons, Hotel Statler, Washington, D.C., November 12, 1956.

† See MILITARY MEDICINE, Vol. 119:277 (October 1956).

experience or on occasion from the type of military experience where it has been possible for an individual's talents to be utilized in the general military advantage wthout causing him to make any essential change in professional activity; other, that is, than of wearing a different kind of suit and working in a different hospital. Such individuals are sometimes given to unflattering generalities and ponderous platitudes concerning the Army, Navy, or the Air Force when in reality they are not thinking of the Army, Navy, or Air Force or even of one of the medical departments, but only of a particular establishment of the military where they happened to be employed for a time. In any event this appears to be singularly unprofitable subject to pursue. If I might paraphrase Mr. Churchill a bit liberally, "Never in the history of human endeavor have so many done so little for so long." But I would like to make very clear that every bit of thoughtful criticism, directed at us from whatever source, should be sincerely welcomed and carefully considered, because honest criticism, even though at times based upon lack of experience or failure of indoctrination, does imply an interest in military medicine and a desire to be helpful.

Josh Billings once said that it isn't ignorance that causes so much trouble; it's the folks that know so much that ain't so. I suspect a great many people know a great many things about military medicine which are at least subject to differing interpretations. That is one of the reasons for such meetings as we shall have here during the next three days; to provide a forum for discussion; possibly some meeting of the minds; even the stimulus to go home and develop a better documentation for some preconceived idea. Our continuing need is for novel ideas, ideas which promise improvement in our methods and which can stand up in the critical light of operational experience. We think we are right in believing that good useful ideas are most likely to evolve in just such a climate of disciplinary cross-fertilization as is provided by this association. Certainly, military medicine is not just taking care of sick soldiers although just as certainly this is a large part of our obligation.

Is there then a simple, concise, and valid definition of the term "military medicine," a conglomerate area of science which embraces at once the activities of the Public Health Service and the medical departments of the Army, the Navy, the Air Force, the Veterans Administration, and the reserve forces? Let me submit that it is the study of the health and human efficiency aspects of the total military environment. Public health in the civilian community, whether in peace or war, bears mightily on this problem. Rehabilitation of the disabled veteran is a personalized continuation of the same obligation. Among the scientific and managerial personnel contributing importantly to military medicine are not only the traditional disciples of Aesculapius with usual clinical skills, but also those who devote themselves to the study of specialized problems inherent in military aviation, prolonged submergence in submarines and diving, nuclear reactors, personal protection against possible attack with chemical or biological agents or by radiation and many others. So, of course, the field of military medicine has need too for large numbers of dentists, veterinarians, nurses, physiotherapists, dietitians, hospital managers, logisticians, physiologists, psychologists, chemists, pharmacists, entomologists, bacteriologists, virologists, physicists, parasitologists, pharmacologists, optometrists, and several other categories of personnel with peculiar training, each adding his skill to the total effort of military medicine to understand the military environment, to help men adapt to it, and to minimize and if need repair malignant influences.

Wars, and the military effort associated with them even in peacetime, have traditionally brought forth an increased tempo of scientific advancement and a vastly expanded practical application of the tediously acquired and often scarcely noticed accretions from the world's best minds and laboratories. In this race military medicine must not stand

still, must not accept a passive role, must not be satisfied to plan only for the care of casualties and above all must not succumb to a sense of frustration. There is an offense in war as well as a defense. So long as men fight wars, victory is more likely to salute those who have been best prepared and equipped, not only to survive, but to function efficiently in the environments imposed. It is, therefore, a proper business for military medicine to assist in the prediction of those environments, to study the implications for the fighting man, and to apply specialized medical and paramedical knowledge to the solution of such problems as can be identified. Those responsible for the development of weapons systems have great need for our counsel as we press on inexorably in further and further exploration of the fringes of space and the depths of the sea, as well as of polar ice and equatorial jungle. Somebody has to do these things. Our association seeks to facilitate the communication of information and exchange of ideas between patriotically motivated health personnel in the interest of the common defense. We would particularly welcome much larger membership participation by younger reserve officers who are serving or have served relatively short tours of duty with the armed forces.

A great deal of work has gone into the preparation of this convention. It would be impossible for me to name all of the people who have given greatly of their time and talents in this connection; the general chairman, program chairman, chairmen and members of all the essential committees, scientific exhibitors, commercial exhibitors, industry supporters, and last, but not least, this wonderful band which has entertained us and the always perfect color guard. To each and every one of you, on behalf of all of us, our sincere and heartfelt thanks.

I am confident that we shall derive much benefit from our attendance and I wish to all of our membership and guests a happy and pleasurable, as well as a profitable, experience.

Medicare Law*

By
MAJOR GENERAL SILAS B. HAYS
The Surgeon General, United States Army

MY REMARKS dealing with the Dependents' Medical Care Act today will be both brief and broad.

Public Law 569 of the Second Session of the 84th Congress made this Act a reality. Its purpose is to create and maintain high morale throughout the uniformed services. This will be done by providing an improved and uniform program of medical care for members of the uniformed services and their dependents. This includes personnel of the Army, Navy, Air Force, Marine Corps, Coast Guard, commissioned members of the U. S. Public Health Service, and commissioned members of the Coast and Geodetic Survey. They must be on active duty in excess of thirty days to qualify. The Act also provides medical care for dependents of retired personnel as well as for dependents of personnel who died while on active duty.

The most important feature of the Act is that the estimated 800,000 spouses and children of active duty personnel, who heretofore could not avail themselves of medical service in uniformed activities because of distance and overtaxed facilities, can now receive such treatment through civilian channels. In other words, your wife and mine may now be treated by *civilian* physicians and hospitalized in *civilian* hospitals.

Initially no restriction will be placed on the free choice of the spouse and children between care in uniformed or civilian hospitals. However, such a restriction may be enforced at a later date if it becomes apparent that uniformed service facilities are available and are not being utilized.

Both in-patient and out-patient care will be available in uniformed medical treatment facilities, but treatment in civilian facilities will be limited to in-patient care primarily.

Out-patient dental care in uniformed installations will be limited to treatment of emergencies, but dental care will be provided in both civilian and uniformed facilities if it is a necessary adjunct to medical or surgical treatment.

You are probably interested in the chain of command of this program. Here is how it works:

The Secretary of Defense, after consultation with the Secretary of Health, Education, and Welfare is responsible for the implementation of the Act. Authority was delegated to the Secretary of the Army to act as the Executive Agent to provide for treatment of dependents in civilian facilities in the Continental United States, Alaska, Hawaii, and Puerto Rico. The Secretary of each uniformed service has been delegated similar authority to implement the Act in his respective medical facilities and in civilian treatment facilities in other overseas areas.

The Secretary of the Army, as Executive Agent, has delegated authority to the Deputy Chief of Staff for Logistics as Program Director to carry out the Act with respect to care in both civilian and uniformed facilities. This authority has been delegated to me as Deputy Program Director. I then, in turn, designated Major General Paul I. Robinson as the Executive Director to administer the phase of the program dealing with the civilian facilities. The Chief of Medical Plans and Operations of my office will handle dependent treatment in Army hospitals as before.

General Robinson's office has the authority to contract for medical care under an insurance, medical services or health plan or plans as may be appropriate. Contracts are being negotiated with Blue Cross and insurance companies which will provide for payment of authorized costs of hospitalization. In other

* Presented at the 63rd annual convention of the Association of Military Surgeons, Washington, D.C., November 12, 1956.

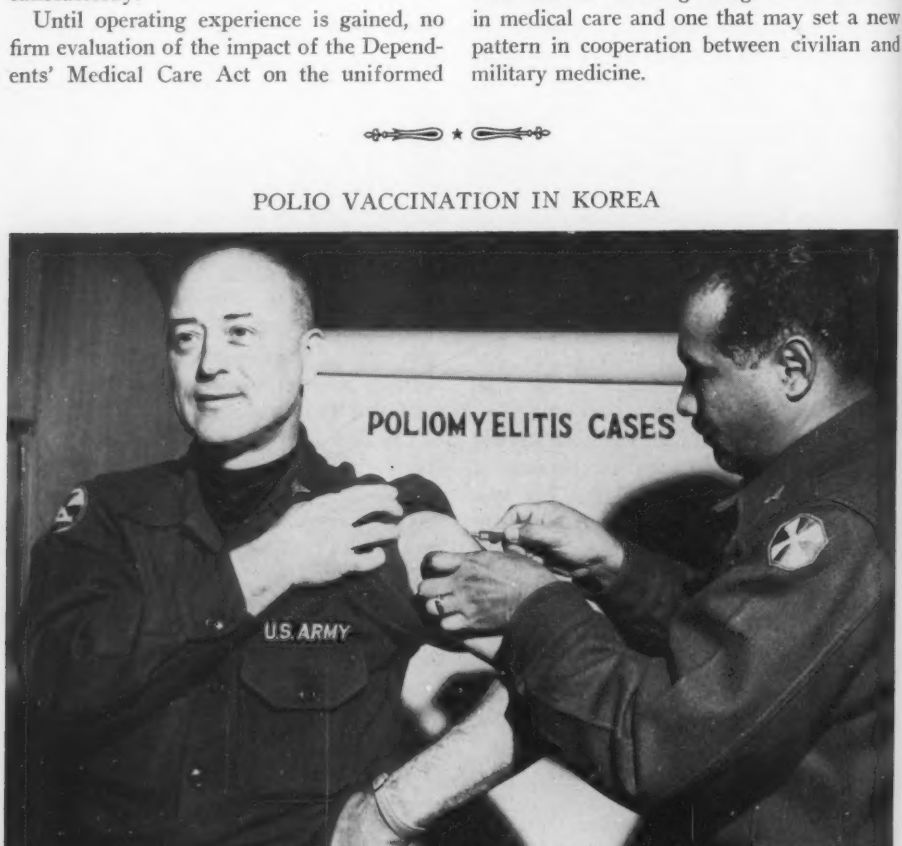
words, they will pay the hospital bills and then once a month they will be reimbursed by the Government. Contracts for payment of physicians are being negotiated with the medical societies and their fiscal agents in each state or territory. They also will be reimbursed on a monthly basis. If these negotiations are not complete by 7 December of this year (1956), then special provisions will be made for the Army areas to effect such payments until the contracts are completed and in performance. The negotiations began on 23 October, and are proceeding satisfactorily.

Until operating experience is gained, no firm evaluation of the impact of the Dependents' Medical Care Act on the uniformed medical services can be made. At the present time, however, significant changes in personnel and bed requirements do not appear likely.

If this program produces the results we hope for, it should be important in promoting career service to a greater percentage of our forces. If only a small percentage of the one million men we lose annually can be retained in service through the provisions of this legislation, then it will pay for itself many times over.

D-Day for this Act is 7 December 1956. This will be the beginning of a new era in medical care and one that may set a new pattern in cooperation between civilian and military medicine.

POLIO VACCINATION IN KOREA



U. S. Army Photo

Colonel Dean Schamber, Army Forces Far East and Eighth U. S. Army Surgeon (left), is shown receiving Salk vaccine administered by Capt. Luis Ramos-Yordan, AFFE and Eighth Army Chief of Preventive Medicine. This initiated the program of poliomyelitis vaccination on a voluntary basis.

Expanding Horizons—Career Incentives*

By
REAR ADMIRAL B. E. BRADLEY,
Deputy Surgeon General, U. S. Navy

ONE YEAR ago, in this same room, I reported to the 62nd Annual Convention of the Association of Military Surgeons the extremely serious nature of the medical and dental personnel problems facing the medical departments of the military services.† Their ability to provide adequate care for the personnel of the Armed Forces was threatened by a forced reduction in the ratio of medical officers to active duty troop strength, coexistent with a rapidly increasingly shortage of career medical and dental officers.

My presentation today is in the nature of a progress report.

To meet the first of these two situations, that of the imposed reduction in medical officers, radical steps were taken to delete every marginal billet and to utilize each remaining medical officer to the fullest extent in the actual professional care of service and dependent personnel. Non-professional personnel were assigned to all purely administrative tasks that did not demand professional knowledge. Even so, it was necessary to curtail the number of officers in medical research, which is so vital to peacetime readiness planning. It was also necessary to reduce for the time being the number of training billets for medical officers.

To halt the rapid depletion of the regular Medical Corps, it was necesary to determine the causes and correct them individually. A survey of physicians released from military service, which was conducted from 1952 to 1956 by the Council on National Defense of the American Medical Association, had shown that about one third of the physicians would have been interested in a professional career in the military services under certain conditions. These included promotion to higher rank, increase in pay, further specialty training, opportunity to practice their specialty, more stability in assignment, and improved living conditions for their families.

Actions taken on these and other points constitute the extensive and continuing career incentive program, to which the Congress, the Department of Defense, the three armed services, the American Medical Association, and other important civilian bodies have given effective support. The Department of Defense Task Force on career incentives, and the continuing inter-service committee on military career incentives, have made fruitful proposals for both administrative and legislative action.

Career attractiveness was greatly enhanced by the enactment in April, 1956 of the Medican and Dental Officer Career Incentive Act (Public Law 497, 84th Congress). This act granted constructive service credit for years spent in medical or dental school and in medical internship. The credit was made applicable for computing base pay and retirement pay, and for determining eligibility for permanent promotion. The act also provided sizable step increases in incentive pay after two, six, and ten years of active duty, respectively.

Under the Dependent's Medical Care Act (Public Law 569, 84th Congress), which will become effective on 7 December 1956, the wife and children of every person on active duty will have the *right* to specified types of medical care, wherever they may live. The assurance that their families will always receive adequate medical care is a career incentive of the greatest importance.

Beginning on 1 January 1957, broader benefits will be provided for survivors of

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* Presented at the 63rd annual convention of the Association of Military Surgeons of the United States at the Hotel Statler, Washington, D.C., November 12, 1956.

† See MILITARY MEDICINE, Vol. 118:109 (February 1956).

military personnel who die in service or who die later as a result of military service. The improved Social Security coverage and equalized payments to survivors provided by The Servicemen's and Veterans' Survivor Benefits Act, will be distinct factors in favor of choosing to become a career medical officer.

Improved living conditions and increased stability in assignments were considered to be career incentives worthy of special attention. Funds authorized in housing bills have therefore been directed to construction of public quarters for junior officers at numerous hospitals, while moves of physicians and dentists have been reduced to a minimum. Moves now are limited mostly to those required by rotation to sea or overseas billets, by completion of training or of specified tours, and by separation.

There remains one career incentive that in the minds of many physicians equals or outweighs the combined incentives of adequate rank, good pay and housing, and stability in assignments. This crucial item is to be able to practice medicine under favorable conditions, in a stimulating environment, and with ample opportunity to develop professionally. To this end, the most serious attention was given to raising to the highest possible level the quality of medical practice in military facilities; to providing full opportunity for post-graduate and specialty training; to assigning specialists to duties that would utilize and enhance their professional skills; and, as an important result, to providing military and dependent personnel with the finest care known to medical science, while raising to a high level the prestige of the military doctor.

All of the twenty-five continental U. S. Naval Hospitals have received full accreditation by the Joint Committee on Accreditation of Hospitals. Sixteen of them have been approved for intern training, and the full quota of two hundred interns were assigned for the current year under the National Intern Matching Plan. In addition, nine of the larger continental hospitals have been approved for residency training. The number of medical officers in residencies in these nine hospitals is two hundred and fifty-nine, with forty-seven more being trained in civilian hospitals. One result of meeting the requirements for accreditation and for training interns and residents, is to ensure a high professional standard in the hospitals concerned. In addition, there have been sixty applications for transfer to the regular Navy from last year's class of interns, while medical officers completing residencies become immediately available for helping to meet our urgent requirement for specialists.

A schedule of comprehensive career patterns for medical officers was created in the Medical Department of the Navy, under which an officer could choose any one of eight or more careers. In Clinical Medicine this pattern is as follows: three or four years in residency training ashore, varying with specialty board requirements; rotation in clinical practice aboard ship, or with a Marine division, or in overseas hospitals and dispensaries, or in a research unit; followed by three to four years' clinical assignment in Continental Naval Hospitals, during which time additional postgraduate training may be taken; then rotation on sea or foreign shore duty in hospitals, dispensaries, or ships; followed by three to four years' clinical duties in Continental Naval Hospitals; two years in additional training, staff, or administrative assignments; and perhaps three years' clinical assignment leading to the rank of chief of service.

Appropriate changes in this career program are made for officers who express an interest in Aviation medicine, Research Submarine Medicine, Preventive Medicine, Atomic Medicine, or Field and Amphibious Medicine.

This career pattern allows the medical officer to attain certain basic knowledge during his early years of duty in the Navy. This he must have if he is to effectively perform service later as a senior officer in a clinical capacity, in Operational Medicine, in staff assignments, or in the professional areas of hospital administration. Moreover,

to a substantial degree the career program permits an individual to follow the line of work in which he is most interested, with eventual recognition as a specialist assigned to the top position in his chosen field. At the same time, the medical department can meet its assigned responsibilities, well-rounded career physicians will be serving the Navy, and there will be maximum equity in duty assignments as between different officers.

One other action that might be classed as career incentive is the commissioning as active duty ensigns of selected fourth year medical and dental students. These officers serve for three years as medical or dental officers, and it is hoped that an appreciable number will elect a military professional career before the completion of their active service.

An increasing number of the medical graduates now entering the services are better informed, militarily, than their predecessors, as a result of the expanding program of medical education for national defense. Beginning in the fall of 1952 as a pilot project in five medical schools, the MEND program was in full operation in twenty-five schools during fiscal year 1956 and just has been extended to ten additional schools. Participating medical schools include in the curriculum the basic principles of military medical care and the care of mass casualties. Faculty members are offered opportunities for observation tours of military facilities and attendance at seminars and symposia on subjects related to military medicine. Among other benefits, it is anticipated that the indoctrination gained in military medical care will interest more graduates in choosing a service career through their appreciation of professional opportunities available in the military services.

In the short time that it has been in operation, the favorable effects of the career incentive program have been unmistakable. Since fiscal year 1952, each year had brought a net decline in the strength of the regular medical corps of the navy, but improved procurement in fiscal year 1956 resulted in seventy-two commissions being accepted, while resignations effective numbered fifty-eight. In the first quarter of fiscal year 1957 there were only sixteen resignations effective and eight new resignations received, as compared with sixty-three commissions accepted and eighty-one applications for commissions that were pending at the end of the quarter. The total of one hundred and forty-four commissions, contrasted with a total of twenty-four resignations, shows that the trend is on the upward swing; and this appears to be true in regard to the armed forces as a whole.

We may all take pleasure in the encouraging portent of the following: In fiscal year 1954, resignations effective from the regular Medical Corps of the Army, Navy and Air Force totaled four hundred and forty-six, while only one hundred and forty-four commissions were accepted. In fiscal year 1955 there were three hundred and sixty-two resignations and two hundred and six commissions accepted. In fiscal year 1956 resignations had dropped to one hundred and ninety-four and accepted commissions had climbed to three hundred and fifty-one. In the first quarter of fiscal year 1956, resignations effective were only fifty-five as compared with two hundred and seventy-two commissions accepted.

The effect of the residency training program in furnishing a major initial incentive for transfer to the regular Medical Corps is evident from the fact that about eighty per cent of the officers commissioned by the Navy in fiscal year 1956 and to date in fiscal year 1957 were ordered either to residency training or to duty under instruction.

A gain that in part resulted from the increase in incentive pay applicable after two years of active duty, is seen in the larger number of requests from reserve officers for extensions of active duty. During the past quarter there were fifty-one such requests from naval officers. Such extensions are most desirable, because the officers concerned are already indoctrinated and actively

serving on board a ship or at a station or hospital, so that the extensions represent net gain.

Of particular interest is the observation that already four regular Navy medical officers who had resigned, have asked to be recommissioned under stimulus of incentive program and are back on duty. One additional such applicant has been approved but is not yet commissioned.

Although it will require continued effort and considerable time to achieve the desired and necessary goal of a regular medical corps comprising roughly two thirds of the authorized number of medical officers on active duty, the downward trend seems to be reversed and there is a noticeable improvement in the career medical officer picture.

FOREIGN DELEGATES TO 63RD ANNUAL CONVENTION, ASSOCIATION OF MILITARY SURGEONS—U. S., HOTEL STATLER, WASHINGTON, D.C., NOVEMBER 12-14, 1956

U. S. Naval Med. School Photo

1st Row (L to R): Brig. Sarup Narain (*India*); Maj. M. S. Mintohardjo (*Indonesia*); Maj. Gen. J. A. Reilinger (*France*); Brig. G. T. L. Archer (*Great Britain*); Brig. K. A. Hunter (*Canada*); Air Commodore A. A. G. Corbet (*Canada*); Rear Adm. Winfred P. Dana, USN (*Pres. Assoc.*); Capt. Walton L. Jones, USN (*Gen'l. Chairman*); Brig. Gen. D. S. Nartsubha (*Thailand*); Brig. Gen. Francisco R. Vargas (*Mexico*); Lt. Gen. Chih-Teh Loo (*Republic of China*); Brig. S. G. U. Shier (*Canada*); Brig. Mohammad Akram (*Pakistan*); Congressman Ricardo R. Gacula (*Philippines*).

2nd Row (L to R): Lt. Col. Mohamad Wonojudo (*Indonesia*); Lt. Col. R. D. Barron (*Canada*); Maj. Edw. Karpetz (*Canada*); Dr. Samut Jatinandana (*Thailand*); Col. Otto Leuch (*Switzerland*); Col. Rodolfo Garcia Navarro (*Cuba*); Capt. Arturo Tamargo (*Chile*); Col. Anibal Miguel Caprile (*Argentina*); Col. Tih Tai (*Republic of China*); Wing Cdr. D. Owen Coons (*Canada*); Capt. F. W. Guntz (*New Zealand*).

3rd Row (L to R): Col. Waldemar Basgal (*Brazil*); Capt. Carlos E. Peralta (*Dominican Republic*); Surg. Lt. Donald Metcalf (*Australia*); Maj. Luis Muniz Angulo (*Cuba*); Maj. Tibor Lepesh (*Yugoslavia*); Lt. Col. Bernhard Paus (*Norway*); Capt. Arne Nelson (*Sweden*); Surg. Cdr. F. P. Ellis (*Great Britain*); Maj. Jacobo A. Alvarez (*Dominican Republic*); Wing Cdr. T. J. Powell (*Canada*); Capt. Nguyen Minh Chau (*Viet Nam*); Capt. Raul Maza Arceyuz (*Guatemala*).

4th Row (L to R): Col. Hi Sup Chung (*Korea*); Capt. Po Myat Ya (*Burma*); Maj. Vu Ngoc Hoan (*Viet Nam*); Capt. W. M. Snowden, USN (*Conv. Comm. Mil. Surg.*); Wing Cdr. J. C. Wickett (*Canada*); Col. Francisco Gonzalez (*Dominican Republic*); Dr. Luis Gonzales-Ramirez, USA (*Conv. Comm. Mil. Surg.*); Surg. Cdr. John M. Holford (*Great Britain*); Col. George G. Green, USA (*Conv. Comm. Mil. Surg.*); Capt. Sarkis Semmikian (*Lebanon*); Dr. Gerold Klein (*Germany*).

The Expanding Horizons*

By
MAJOR GENERAL DAN C. OGLE, USAF (MC),
Surgeon General, United States Air Force

THE THEME of this year's program of the Association of Military Surgeons emphasizes our expanding horizons. It appears that military medicine utilizes increasingly more varied and more detailed technical scientific knowledge; also, that the various divisions of military medicine and military science are less isolated or sequestered than previously and must work together to solve the over-all problem of human comfort, physical and mental efficiency, health and physical fitness for the men and women engaged in maintaining our military posture. These expanding horizons ally medicine, human welfare, and engineering sciences in merged and cooperative programs where each must support the other toward a common end. In speaking of expanding horizons, we must not limit our view to immediate responsibilities but should consider what problems may be ours to solve in the light of further progress in the technology of warfare or of weapon systems. Tomorrow's potential problems should not be lost through the pressures of today or because of professional lethargy or poverty of vision.

In seeking an official document from which I might get ideas for this presentation, I selected excerpts from an approved medical manual. The following sentences are quoted:

"Wonderful has been the development of the airplane—inconceivable has been the neglect of the MAN in the airplane."

"Starting as a scientific experiment, aviation has developed with such gigantic strides that today, in the defense of our Nation, the Air Force has a place comparable in fighting importance with the land and sea forces."

"Through all time has been speeding up."

"It is not surprising that in the United States, . . ., this speed mania broke all bounds and man flew off at a tangent into space."

"Each new mode of travel has evolved its own new and peculiar human ills and medical problems."

However—"It is easy to see how the necessity for attention to the physical efficiency of the pilot came to be overlooked; the world over, everyone has been so absorbed in the one effort—to increase the mechanical efficiency of the airplane. Every thought has been directed toward making each successive model safer and faster.

"Nevertheless, aviation is not merely spectacular; it does have its unique problems and makes its unique demands upon those in this service. Nature never intended that man should fly. From the time that he leaves the ground until his return, he is living under unnatural conditions."

"He flies in an atmosphere lacking in that oxygen which is the 'breath of life'; subjected to the shells of anti-aircraft guns, or encountering enemy aircraft at any moment; with his body at a dizzy height and hurtling through space at the rate of 125 miles an hour. . . ."

That last sentence tips off the fact that I have been reading from an Air Service Manual of 1918. Up to that statement concerning 125 miles on hour, it sounds like any one of a number of recent speeches given in an effort to explain the necessity of increased cooperation between engineering and medicine in the development of manned vehicles, and the unique position military physicians have in keeping today's military man adapted to the weapons and munitions of modern warfare.

Recently, I received an advertisement for a

* Presented at the opening session of the 63rd annual convention of the Association of Military Surgeons of the United States, Hotel Statler, Washington, D.C., November 12, 1956.

magazine of world astronautics. The letterhead was a schematic picture of the globe with a man-made satellite in its new orbit, and the question, "After Project Vanguard, what?" The next question was, "Will mice, monkeys, or men man the next space vehicle?"

This latter question took my memory back to an air vehicle of an early age, when man was not yet prepared or nerved to ride the new vehicle of 1783 technology. This was the year of initial large scale experiments with the hot air balloon. The first flight carrying land animals into the rare atmosphere of upper space had as passengers a duck, a sheep, and a rooster. In this former century men soon followed the duck, the sheep and the rooster. Some lost their lives to the mysterious forces of this early threshold of space. But records were kept and new medical and engineering sciences were born. In our day man has also followed his experimental animals to speeds of 2000 miles per hour and to altitudes of 126,000 feet.

In a search for something more up to date about which I could speak without doubt as to its security classification, I read a single copy of the Army-Navy-Air Force Register, dated November 3, 1956. On the front page was a picture of a life-sized model of a proposed artificial satellite for Operation Vanguard.

Opposite this was a three column banner headline, "SHAPE OF FUTURE CONFLICTS IS SKETCHED . . . AT ARMY CONFERENCE." Here it was indicated that the hydrogen bomb can be "tooled down" to tactical proportions. For those of you who understand the difference between tactical and strategic employment of great weapons, this is indeed a significant statement. The Army's Chief of Research and Development states, "New aircraft, rockets, missiles, atomic munitions and other new materials have been added to the Army's arsenal. Many more new and improved models will soon join in the service. Their employment however, engenders new concepts of warfare not even envisioned 10 years ago. Military concepts once only identified as futuristic fantasies have already begun to take on substance and shape." The spokesman outlined further scientific advances, called particular attention to the "amazing strides in the medical fields since the end of World War II," and went on to say that the day will come when the missile itself will be adapted for troop transport. Immediately to the right of this column was a ten-inch diagram picturing how troops might be carried in a giant guided missile in the future.

On this same front page, under a two-column banner headline labeled, "DECISION NEARS ON WS 110," was an article stating that high officials of the Air Force confirmed reports that they had been studying plans for a two- to three-hundred ton high altitude bomber powered by turbojets using high-energy metallic super fuels that could in time replace the B-52, the present long range bomber. This project is known as WS 110 and will probably precede WS 125, the proposed bomber using an atomic engine. This article states the Air Force is known to desire an airplane that can fly at eighty- to one-hundred thousand feet and carry a hydrogen bomb 5,000 miles at Mach 3—three times the speed of sound.

Turning the page of the Register, I saw the headline, "REVOLUTION IN THE NAVY." This commanded quick attention but proved to be a very substantial article which dealt with the introduction of atom power and guided missiles in modern warfare.

On turning the page again, there was the headline, "U.S. STRENGTH FOR PEACE," an article by an Assistant Secretary of the Air Force. Here is a quote from his article: "To meet the needs of its defense responsibilities, the Air Force works very closely with industry to foster research, development, and production of advanced air vehicles, including guided and ballistic missiles as well as bomber and fighter aircraft.

"Additionally, we are continuing to improve radar warning equipment, tracking and aiming devices, and electronic communica-

tions systems. We are studying problems related to speeds up to Mach 20, and those related to stratospheric altitudes.

"Our efforts are aimed toward faster, higher flying vehicles; greater combat capability of weapons; increased hardware effectiveness with respect to operations, maintenance, and support. Concurrently, we are probing scientific barriers, seeking breakthroughs which will provide us with items and ideas not now dreamed of.

"Ultimately, however, the success of our Air Force, of our defense effort, and of our nation hinges on the effectiveness of one resource: PEOPLE." At this point, he adds: "That is the most important statement I can make now or ever."

The Assistant Air Force Secretary concludes his article as follows: "The defense effort of our nation hinges on the effectiveness of people. The fastest, highest-flying bomber we have remains useless until men climb aboard it and operate it, and the best missile we can develop stays paralyzed at its launching site until it is sighted and triggered by skilled operators."

In a large measure the effectiveness of people is a responsibility of military medicine.

On page 9 of the Register is a picture of America's first supersonic bomber, the U. S. Air Force B-58, designed for supersonic speeds above 50,000 feet.

Another article starts off as follows: "ROTC flight training in American colleges moved close to reality this week as both the Army and the Air Force worked on final details for implementation of the vital program."

I need not dwell much further on the expanding horizons of military medicine or of aviation medicine.

You who are physicians or specialists in health and human factors fields need not be told how great our responsibilities are in present day military environmental medicine, whether it be of the sea, the land, or the air.

Twenty thousand leagues under the sea with atomic power—paratrooping into a hail of resistance—surviving and combating the blasts and poisons of fantastic weapons—or functioning in the ethereal isolation of incredible speeds and altitudes, all demand that leadership, engineering, and medicine work more closely together to support each single defender of our security.

Regardless of how far our horizons expand, the primary job of military medicine will be that of maintaining healthy bodies and minds, equipped for sustained duty in strange environments which we must make as friendly as possible.

And regardless of the expanding horizons of science and technology or of the complexities of combat, our simplest, yet most fundamental, requirement for survival will continue to be a living faith in our God, in our country, and in ourselves.

Expanding Horizons in Research and Education in the Veterans Administration*

By

ROY A. WOLFORD, M.D.

Deputy Chief Medical Director, Veterans Administration, Washington, D.C.

IT HAS been gratifying in the Veterans Administration to experience the truism that the greatest advances in profession and science occur at those growing margins where specialties overlap and lose their separate identities in cooperative endeavor. We have been particularly fortunate in obtaining the fruits of integrative action in service to the veteran patient, and this has made it mandatory that the same principle be maintained in research and education programs of the Veterans Administration.

The Veterans Administration has an unparalleled potential with relation to research and education. Its one hundred and seventy-three hospitals with 122,500 beds has an average daily patient population of 112,000 with almost one-half million admissions flowing through its wards each year. A goodly number of its 500,000 annual dischargees return for follow-up care. The occupants of its hospital beds are a select clientele—almost entirely males— in the age groups from twenty-five to eighty years, the largest increment being in the fifth and sixth decades of life. There is diverse classification of disease—neuropsychiatric, tuberculous, and general medical and surgical—and in these general classifications are found all types of disorders to which man is heir in both the acute and chronic stages. Eighty-three Veterans Administration hospitals are closely affiliated with medical schools through Deans Committees that supervise the research activities and residency programs in the individual hospitals.

On the organization of the Department of Medicine and Surgery in the Veterans Administration, it was early recognized that the most effective medical care is nurtured in an environment where the staff is afforded the opportunity to engage in both teaching and research, and that this dual function could best be conducted in the academic atmosphere of a medical school.

During that first year (1946) the present extensive residency program was initiated and by June 30, 1947, affiliation of sixty-four hospitals had been effected with medical schools.

From January 1, 1949, through April 15, 1956, over 5,000 residents have completed their training. At the moment, there are approximately 2,300 medical and dental residents in training in twenty-four specialties, eleven percent of all the residents in training in all hospitals in the United States.

A more recent innovation in residency training in the Veterans Administration has been the "career" residencies. This is a specialty training program for full-time physicians and dentists, whereby full-time personnel agree to serve a period of "obligated service" at a hospital designated by the Veterans Administration upon completion of this formal residency.

These career residency programs are in effect only for those categories of professional personnel in very scarce supply, e.g. psychiatry and neurology, dentistry, physical medicine and rehabilitation, anesthesiology, and radiology.

Over 200 physicians and dentists are in this training program, and in addition, forty-six psychiatrists and neurologists, having completed career residencies, are serving their obligated term of service.

The Veterans Administration is now embarking on another innovation—a clinical investigation program. Physicians interested in

* Presented at the 63rd annual convention of the Association of Military Surgeons of the United States, Hotel Statler, Washington, D.C., November 12, 1956.

the problems of particular concern to veteran patients in fields basic to neurology and psychiatry, cardiovascular diseases, cancer, degenerative diseases, and problems involving the aging process will be selected for a period of training up to three years.

A most productive internship program for the recruitment of professional personnel has graduated almost 800 dietitians since its inception.

One hundred and fourteen (114) schools of nursing utilize Veterans Administration hospitals for the preparation of student nurses in the fields of psychiatric and tuberculosis nursing annually enrolling 2,600.

In-service training activities in the paramedical specialties are conducted entirely within the Veterans Administration hospitals and clinics and apply to full-time employees as well as part-time trainees. These trainees receive the hospital phase of programs sponsored by universities or other institutions, such programs terminating in the award of an academic degree.

Conduct of these programs is essential in order to create a source of future recruitment of full-time employees in categories which are in very scarce supply. Over 1,900 such trainees are working at the present time toward an academic degree.

The Medical Research Program of the Veterans Administration was launched as a separate entity in 1946 with an allocation of $1,000,000 from appropriated funds for the Fiscal Year 1947. This immediately provided facilities and personnel for research laboratories in two hospitals—Hines and Mount Alto. It also marked the initiation of the VA-Army-Navy Cooperative Study on the Chemotherapy of Tuberculosis, later joined by the Air Force, and now designated, the VA-Armed Forces Cooperative Study with fifty-eight active study units from the four sister services cooperating.

Results of anti-tuberculosis therapy in one form or another in 27,000 pulmonary tuberculosis patients and 8,000 patients with nonpulmonary tuberculosis have been evaluated, and the cooperative study is continuing.

The original two medical research laboratories have burgeoned to 122 with a research staff of 1,000.

In 1946, the Veterans Administration supported approximately 100 research projects in some dozen major diseases. Today, there are nearly 4,000 active studies (covering a wide range in both basic and clinical research) underway within Veterans Administration hospitals. From a level of approximately twenty publications in 1946, there are now more than 900 publications annually in nationally recognized scientific and medical journals.

The number and variety of paramedical research projects are considerable. At any one time there are perhaps 500 studies in progress at Veterans Administration stations undertaken by staff members and trainees.

From its inception, the Medical Research Program of the Veterans Administration has been, to a large extent, decentralized. Research ideas may stem from any member of the staff of a Veterans Administration hospital. These ideas may come from residents and junior staff members, as well as Chiefs of Service. They are carefully screened by the hospital Research Committee, which is responsible in turn to the Deans Committee.

In addition, there are cooperative studies coordinated by Central Office. Such studies are initiated when it is deemed desirable or advantageous to have more than one hospital participate in a single research project. The vast quantity of clinical material available within Veterans Administration hospitals presents a unique opportunity for cooperative studies, such as the evaluation of new drugs and new procedures. With Central Office coordination, large number of patients may be studied under a common protocol and statistically valid answers may be available within a relatively short period of time. The opportunity for follow-up studies adds great strength to those cooperative ventures.

From the very beginning, one of the basic concepts of the research program of the Vet-

erans Administration has been the desirability for a close working relationship between the representatives of the medical departments of the Armed Services and the representatives of the Department of Medicine and Surgery. This close working relationship, established mutually within the Offices of the three Surgeons General and the Office of the Chief Medical Director, has been extended to all levels of research interest and research responsibility.

In more recent years, there has been similar cooperation established with the U. S. Public Health Service, and the Department of Health, Education and Welfare.

The Clinical Studies Division of the Research Service was organized in 1955 to initiate and coordinate cooperative research in Veterans Administration hospitals.

The Psychiatric Evaluation Project was launched this summer for a five-year cruise. This is a unique program to evaluate the progress, care and treatment of patients in a selected number of Veterans Administration hospitals chosen because of different construction, varied staffing patterns and the like.

The just completed cooperative study of isoniazid in the treatment of multiple sclerosis definitely nailed down the ineffectiveness of this medication when a battery of alerted neurologists attacked the problem.

The following important cooperative studies were initiated during the past year:

(1) *Cooperative Study to Evaluate Newer Hypertensive Drugs:* This study is being conducted in five Veterans Administration hospitals.

(2) *Cooperative Study of Myocardial Infarction:* This study has a retrospective and prospective component. The retrospective study is being conducted at a Veterans Administration hospital by a review of records of patients with a first attack of myocardial infarction, admitted to all Veterans Administration hospitals during the past five years.

The case record study will be used as a basis for design of a cooperative projection study which will include comparisons and evaluation of anti-coagulants used in the treatment of coronary artery disease.

(3) *Cooperative Study of Tranquilizing Drugs:* This study is being conducted in thirty Veterans Administration Neuropsychiatric hospitals under the direct supervision of the Neuropsychiatric Service.

(4) *Cooperative Study of Pulmonary Function Testing:* This study has been expanded to include ten Veterans Administration hospitals interested in establishing normal criteria of pulmonary function measurements. Preliminary data already available suggests that measurements heretofore considered to be standard values may not be applied to elderly individuals.

(5) *Cooperative Study of Chemotherapy of Cancer:* The Veterans Administration has joined with the National Institutes of Health, the Damon Runyon Memorial Fund, the Atomic Energy Commission, the Food and Drug Administration, and the American Cancer Society in a cooperative study to evaluate new drugs for the treatment of certain forms of cancer and leukemia.

Three monographs reporting results of follow-up studies conducted as a part of the Veterans Administration contractual research program in collaboration with the National Research Council, were recently published by the Government Printing Office:

(1) A Follow-Up Study of World War II Prisoners.

(2) Tuberculosis in the Army of the United States.

(3) A Follow-Up Study of War Neuroses.

The Veterans Administration has a serious responsibility to carry out medical research in the disabilities and diseases associated with the aging veteran population. The increasing age of veterans is the most important single factor accounting for the shifting diagnostic composition of our patients. Diseases of these older veterans are primarily of a chronic nature and usually require long-term hospitalization.

There has been a significant increase in the number of veterans hospitalized with heart disease, respiratory difficulties and diseases of the blood vessels, cancer, diseases of the digestive and genito-urinary system, arthritis and other bone and joint disorders. Their great number provides the Veterans Administration an opportunity to investigate these diseases in order to be able to offer more effective methods of diagnosis, treatment and rehabilitation. Nowhere else in the world are found patients in all stages of these diseases in such large numbers or under conditions so suitable for clinical investigation as in Veterans Administration hospitals.

"FREE" INSURANCE IS OUT—JANUARY 1, 1957

Here is the table giving the monthly compensation for widows of those who die in the military services. See Survivor Benefits Act.

Pay Grade	YEARS OF SERVICE													
	Under 2	Over 2	Over 3	Over 4	Over 6	Over 8	Over 10	Over 12	Over 14	Over 16	Over 18	Over 22	Over 26	Over 30
COMMISSIONED														
O-8	$228.00	$228.00	$235.00	$235.00	$235.00	$235.00	$235.00	$235.00	$235.00	$235.00	$235.00	$235.00	$235.00	$242.00
O-7	209.00	209.00	215.00	215.00	215.00	215.00	215.00	215.00	215.00	215.00	215.00	215.00	221.00	229.00
O-6	184.00	184.00	188.00	188.00	188.00	188.00	188.00	188.00	188.00	191.00	199.00	202.00	206.00	210.00
O-5	169.00	169.00	173.00	173.00	173.00	173.00	173.00	176.00	180.00	182.00	186.00	189.00	193.00	193.00
O-4	161.00	161.00	164.00	164.00	164.00	167.00	171.00	172.00	174.00	176.00	180.00	182.00	184.00	184.00
O-3	152.00	152.00	155.00	157.00	161.00	163.00	165.00	167.00	169.00	171.00	172.00	174.00	174.00	174.00
O-2	144.00	145.00	153.00	153.00	155.00	156.00	158.00	160.00	162.00	162.00	162.00	162.00	162.00	162.00
O-1	139.00	141.00	148.00	148.00	150.00	152.00	154.00	156.00	157.00	157.00	157.00	157.00	157.00	157.00
WARRANT														
W-4	$152.00	$155.00	$155.00	$155.00	$157.00	$159.00	$161.00	$163.00	$167.00	$169.00	$171.00	$172.00	$174.00	$176.00
W-3	149.00	151.00	151.00	151.00	152.00	153.00	154.00	156.00	157.00	158.00	161.00	164.00	166.00	168.00
W-2	144.00	146.00	146.00	146.00	147.00	149.00	151.00	153.00	154.00	155.00	157.00	159.00	161.00	163.00
W-1	139.00	143.00	143.00	143.00	145.00	147.00	148.00	149.00	150.00	151.00	153.00	155.00	157.00	157.00
ENLISTED														
E-7	$137.00	139.00	$139.00	$140.00	$141.00	$143.00	$144.00	$145.00	$146.00	$147.00	$149.00	$151.00	$153.00	$153.00
E-6	134.00	135.00	135.00	136.00	138.00	139.00	141.00	142.00	142.00	143.00	145.00	147.00	147.00	147.00
E-5	130.00	132.00	132.00	134.00	135.00	137.00	138.00	139.00	140.00	141.00	142.00	143.00	143.00	143.00
E-4	127.00	129.00	129.00	132.00	133.00	134.00	135.00	136.00	137.00	138.00	139.00	139.00	139.00	139.00
E-3	124.00	127.00	127.00	128.00	129.00	130.00	131.00	132.00	132.00	132.00	132.00	132.00	132.00	132.00
E-2	123.00	125.00	125.00	126.00	127.00	127.00	128.00	128.00	128.00	128.00	128.00	128.00	128.00	128.00
E-1	122.00	124.00	124.00	125.00	125.00	125.00	125.00	125.00	125.00	125.00	125.00	125.00	125.00	125.00

Memorable Events, Lives, and Books, Calendar of Commemoration for 1957

By
CLAUDIUS F. MAYER, M.D.

"To look at all things with a mind at peace."
(LUCRETIUS. *De rerum natura.* 57 B.C.)

AMONG the Romans, as far back as the third century before Christ, the first month of the year was held sacred to Janus, the twin-faced god, looking ahead with his youthful eyes of expectation, and looking backward with another face, wrinkled by age and worried by experience.

The Janus head of Antiquity is symbolic of the wisdom of the god to behold past and future. Contemplation of the past is indeed a divine wisdom, and the recall of historical events and personalities, while appealing to our feelings and stimulating to comparison and judgment, brings its fruits of wiser conduct of our lives and better moral management of our public affairs. For this reason, to certain contemporary philosophers all history seems contemporary history, and historical thought is the most perfect and most integral knowledge.

This year, at the return of another January, let us again—as at such previous occasions—scrutinize the past, and select some of the events, persons and printed documents of general human or special medical and military interest whose vital dates coincide with one of the fifty-year marks on our arbitrary scale of anniversaries. Let us hope that, at the start of the new 1957th year, our brief retrospect will be both amusing for the moment and provoking to further thought and deeper study.

PART 1: MEMORABLE EVENTS

One of the earliest general events which we recall this year in scanning the past is the decisive battle at the river Metaurus in 207 B.C. when the Roman consuls cut to pieces the army of Hasdrubal. The battle was fought in the course of the Second Punic War. Hasdrubal had moved with his troops of Carthaginian soldiers from Spain; he had crossed the Alps to reinforce the army of his brother, Hannibal, who was held up in Southern Italy. He sent messengers to his brother to tell of his arrival and ask the other army to meet him in the plain of the Tiber. But the messengers fell into the hands of the Romans. Hannibal waited in vain until his brother's head, in a basket, was delivered into his camp. Hasdrubal namely, when he saw his army annihilated, ran into the midst of the enemy, and fell, thus dying as a hero and the worthy son of Hamilcar Barcas.

Further progress of Roman history brought Caesar's war into Belgium (57 B.C.), and the conquest of Dacia by Trajan (107 A.D.). Dacia, which after the Roman conquest included approximately the territory of the present Romania together with Transylvania, had been in almost continual fighting with the Roman legions since the days of Emperor Augustus who sent his troops along the valley of the Maros river. At his first attempt, Trajan crossed the Tisza river (101 A.D.), marched into Transylvania, and fought a great battle near Torda. The second expedition of Trajan, after three years of campaign, finally resulted in the death of Decebalus (107 A.D.), king of the Dacians, and the colonization of this area began.

The disintegration of Britain as a Roman province started around 407 A.D. There were various seditions. Repeated attempts were made to set up a western empire with Britain in the lead. Several usurpers were quickly declared emperors by the legionnaires, and as quickly killed. Finally, a private soldier by the name of Constantine was selected in the hope that one of such a great historical name (recalling the memory of Constantine the Great) must be good. But

Private Constantine soon proved to be no salvation for the shaken Western Empire.

Meanwhile, the Eastern Empire was growing stronger and stronger. Emperor Leo I, a Thracian, became the ruler at a time when Arians and Greek orthodox believers were in a ferocious religious struggle (457 A.D.). But how relative is the estimate of a man's value! The orthodox always referred to Leo as "The Great" while the Arians called him "The Butcher."

In Western Europe, the sixth century saw the establishment of a new empire over the ruins of the former Roman provinces. Chlovis (or Chlodwig) wished to unite all Frankish people into one kingdom. (The earliest attempt at creating a NATO!) He made Paris his court and capital in 507 A.D., and declared the Gothic War. The new kingdom was actually established a couple of hundred years later, and Pepin, called "The Short," father of Charlemagne, became the first king of the Franks. The growing political importance of the new kingdom is shown by the eagerness of the contemporary rulers to present the Frank kings with valuable products of the arts and technics. Constantine, the *Kopronymos* (he was called so because he dirtied his baptismal font), Byzantine emperor, sent a water-organ as a gift to young Pepin, who received it in 757 A.D., and gave it to a church. With the organ came the message that Gisella, the Greek princess, was of marriageable age and she would follow the organ if requested. We also know of another gift, a water-clock, with sounds and an alarm device, which Harun-ar-Rashid, fabulous ruler of Baghdad, sent to Charlemagne, Pepin's son, in 807 A.D.

This year, Switzerland should light bonfires in the Alps. The Swiss Independence dates from November 1307 A.D., when the leaders of three cantons (Uri, Schweitz, and Unterwalden) united to break the Austrian chains of their servitude. Arnold of Melchthal joined with Fürst and William Tell to establish the liberty of Switzerland. It was Tell whom Gessler, the Austrian tyrant, compelled to shoot an apple off the head of his son with an arrow. Tell's skilled hand was able to do so, but soon afterwards he also shot Gessler himself, thus starting the fight which went on for many years, adorned with such heroic deeds as the defeat of 20,000 Austrians by 500 Swiss patriots at the pass of Morgartern.

Almost a century before the fall of Byzance, the relentlessly pushing Asian hordes of the Turks acquired their first real estate in Europe by capturing Gallipoli in 1357, at that time the most important city on the Hellespont, and situated just about 130 miles WSW from Byzance. From this beachhead then, the Turks easily spread out to a formidable world power.

In the evolution of our country, especially in the history of Virginia, the year 1607 was momentous. The colonists of the London Company, after an earlier unsuccessful attempt, reached the American shore in the spring of that year and entered the mouth of the Chesapeake Bay; then on May 13 they entered James River, and made the first permanent English settlement of Jamestown (Va.). The role of John Smith in the colonial administration, his capture by the Indians, and his liberation by Pocahontas, daughter of Powhatan, who "hazarded the beating out of her brains" by the savages, were described at length by John Smith himself. (At the beginning of the current century, these events had been very solemnly celebrated, and they will be, no doubt, reenacted again and again.) While the London Company was colonizing the Mid-Atlantic shore of America, another group of colonists, sailing from Plymouth, arrived at the Sagadahoc River on August 12, 1607, and a week later they established Popham's Colony, an early English settlement at the Kennebec River in Maine.

Fifty more years bring us to the times of Oliver Cromwell, the Lord Protector and the greatest ruler of England who made 1657 A.D. memorable by refusing to take the crown. In the same year, George Washington's great-grandfather emigrated to Virginia. Soon thereafter, during the reign of Queen Anne, the history of England reached

its most significant year, i.e., the year 1707 when England and Scotland united under the name of Great Britain. The British possessions in America witnessed early fights of the different colonizing nations among themselves and with the Indians, the unsuccessful seige of Port Royal, and the Indian attack upon Winter Harbor in Maine, whose settlers had to escape in ships.

In Asia, with the death of the last great Mogul in 1707, the Indian Empire began to decay. It broke up into independent states, and various adventurers had a great time to carve out their fortunes. The next fifty years of India were rather difficult for the trading East India Company but in 1757, by the single victory of Clive at Plassey (June 23), the government of Bengal was transferred to this company of British merchants. It was during the Bengal hostilities that Englishmen learned the use of white and variegated signal fires (so-called Bengalese fires). Soon after Plassey, the Indian Medical Service was also organized, first in a provisional form.

One of the great social problems of the early 19th century was the trade in human flesh at the labor market. Its atrocity was often condemned. Finally, on March 25, 1807, the Act of Abolition of slave trade in the British Dominions received the royal assent. Simultaneously, the African Institution for Abolition of Slave Trade was established in London. In the United States, Congress had already forbidden the importation of slaves on March 2, 1807.

That year's most memorable American event was Aaron Burr's trial at Richmond. The trial was held in the Chamber of the House of Delegates of the Virginia State Capitol, and the eyes of the entire nation were focussed on Richmond. President Jefferson wrote many letters to the prosecuting attorney of Virginia since he was eager for a condemnation of Burr who had been charged with treason. But those who tried Burr, namely the judge and the foreman of the jury, were Jefferson's foes. And thus, to his great humiliation and disgust, the prisoner was discharged on the grounds that "no overt act sustained by the testimony of only two witnesses" could prove such a charge. Burr then went to France where he later made another plan for the destruction of the United States.

In the same year (1807) another indignity was suffered by the country when the U. S. frigate *Chesapeake*, anchored near Norfolk, was shot at and forced by the British ship *Leopard* to submit to a search for alleged deserters. Then, with her rigging torn and her hull riddled by solid shot, the *Chesapeake* crawled back to Norfolk. Jefferson then said that "English tyranny is bearing us down in every point of either honor or interest." In spite of the continued naval and commercial war between Great Britain and Napoleon, American foreign trade reached a very high peak in 1807. But a new British order in November of the same year practically closed all European ports to America. Since Napoleon retaliated with his famous Milano decree (Dec. 17) against British commerce, at the end of the year the U.S. government stopped all its foreign trade.

The most outstanding political event of the year 1857 was the Sepoy Mutiny (*sepoy* means soldier) of the native Bengal army early in January in Calcutta, followed by similar organized disturbances at other Hindu cities, at Meerut and Lucknow, and the massacre at Cawnpore. The great revolt continued as a great colonial war between Hindu and British, and ended the next year only resulting in a firmer attachment of the British crown on India's head. Among the many causes of the Indian Mutiny the most immediate was a British colonel's stupid order and stubbornness in forcing the native troops to use a new type of cartridge which had to be greased with the tallow of pigs and cows, the very animals either sacred to the Hindus or anathema to the Moslim.

For Canada, Queen Victoria made up her mind and selected Ottawa as the dominion's capital. In Mexico, a new constitution was promulgated in 1857, while in the U. S. another inauguration took place on March 4, with Mr. Buchanan as the 15th president.

Buchanan was a cordial, tall man, more than 6 ft. in height, broad shouldered, with a pale face, its paleness emphasized by his large white cravat. He is said to have been wild in his youth, and Carlisle College almost expelled him.

Two days after Buchanan's inauguration, the Supreme Court handed down a most important decision in the Dred Scott case. Scott was a Negro slave of an army surgeon; with his master he travelled a lot. Once when they reached the State of Missouri, the slave sued for his freedom on the basis of the so-called Missouri Compromise. The majority of the Supreme Court justices were southerners, however, and they brought a decision saying that the Negro was "not a citizen in the view of the framers of the Constitution" and that Congress has no power to make him so. It also stated that regulation of slavery is beyond the power of the national government. This was plainly a case of lending authority to a political cause, which added to the indignation growing during 1857 and ultimately leading to Civil War.

A hundred years ago there was a great financial panic in our country. It resulted from nine years' extravagant living which followed the discovery of gold in California. Many luxuries had been imported from abroad, the country had become heavily indebted, and the liquid capital flew to Europe to pay the debts. Signs of the approaching financial trouble appeared already in August 1857, but the real crash came in October when the Ohio Life Insurance and Trust Company failed. Soon, 5,000 banks, many large business houses and railroads also failed, and closed their doors throughout the Eastern United States. Hundreds of thousands of men lost employment, while inflated prices caused added sufferings. In November, hunger meetings were held in Tompkins Square at New York, and in Philadelphia thousands marked in columns demanding work and bread. Wall Street saved itself only by the protection of troops borrowed from Governor's Island. The panic ended in December when payments were resumed. It is interesting to know that the South did not suffer from the panic, and its cotton industry for the year was very prosperous, which fact was used as a southern argument for the economic soundness of the system of slave labor. On the Mississippi River, Mr. Clemens (alias Mark Twain) just started his four-year piloting work, an important formative period in his career as a man of letters. (Fifty years later in 1907, the Oxford University bestowed upon him the honorary degree of doctor of letters.)

Arts and Sciences

From the history of science and culture also, the new year brings to us anniversaries of many significant events, inventions and discoveries, and the births of learned institutions and societies.

It is said that, in its earliest form, the museum and library of Alexandria began to function in 307 B.C. when Ptolemy Soter was the ruler in Egypt. He was the first of the Ptolemean Dynasty. He introduced and patronized Greek art, science and literature. The first manager of the library was Demetrios Phalereos, a banished Athenian, who acquired about 50,000 rolls of manuscripts for the young Alexandrine collection. Another memorable date of the antiquity refers to Apollodoros, architect of Trajan, who, in the year of the conquest of Dacia (107 A.D.), for the glorification of his emperor began to build Trajan's Forum which is still an item of interest for the modern sightseer in Rome.

In early medieval records we find that in 857 A.D. a peculiar gangrenous epidemic appeared at the convent of Xanten near the Rhine which caused mortification of the limbs. The disease was most likely the "holy fire" (*ignis sacer*) caused by the consumption of bread made out of ergot-contaminated grains. Ergotism was rather frequent in the past. Thus, another similar epidemic occurred in France in 957 A.D. Later, especially after the terrible pest of the 14th century, the people of the Middle Ages became more epidemic-minded. The role of filth in the spread of disease was also recognized as

shown by the Royal Order of 1357 which prohibited the Londoners to throw filth into the Thames river. According to a late medieval belief, an epidemic arose under the influence of the stars. In 1357 an obscure epidemic broke out in Firenze which a later local historian of the renaissance merely called *"influentia coeli."* It may be disputed whether the Firenze epidemic was a prototype of the modern version of influenza (whose name is thus of medieval origin).

In the same year (1357) Charles IV made the University of Siena a *"studium generale."* A hundred years later (1457) the University of Freiburg was founded by Albrecht VI, though it opened for instruction somewhat later. Historians of technology state that the invention of the coach, the car with the built-in spring-type shock absorbers, also dates from the same year. The new type of car is supposed to have been constructed in Kocse, a village near Györ in Hungary. Hence, it was named after the village (*"kocsi," Kutsche,* coach). It soon rolled to Paris as a gift from King Ladislaus of Hungary (in England, the manufacture of coaches started in 1555).

People of the renaissance became acquainted with platinum (1557) which was then brought over from the New World. From Bartolomé de Medina they also learned how to extract silver and gold from the ores by means of mercury. Ambroise Paré, French military surgeon, taught the physicians of his time that flies were carriers of diseases. He himself observed this danger during the year's famous battle at St. Quentin.

In 1607 the University of Giessen was chartered by Rudolph II. It later developed into one of the most illustrious German centers of science. Galileo Galilei was then experimenting with the fabrication of a telescope for himself. He also attempted to measure the velocity of light by means of two lanterns placed at some distance from each other and the observer. By these and similar experiments, indeed, he became the creator of experimental science.

Fifty years later (1657) the Hospital of *La Salpêtrière* was opened (May 1) as a general hospital for the poor of Paris. It started in a house where saltpeter had been formerly manufactured. The Parisian poor also began to enjoy the benefits of another institution, the *Château Bicêtre* which at the same time became a hospital, an almshouse and a prison. Originally, the new institution was an old castle in the Paris suburb, once used by thieves as a hiding place. Louis XIII had rebuilt it, and then made it a veterans' hospital. While the welfare of Paris was thus taken care of, an important event occurred (June 10) in Firenze where the Grand Duke of Toscana, a former pupil of Galilei, founded and opened the *Accademia di Cimento* (Academy of Experiment), the first European society for experimentation in natural sciences. Among its celebrated members this society thereafter numbered such scholars as Borelli, Redi, Fontana, Mascagni, the Danish Steno, etc.

The year 1657 was also noted for an epidemic in København, most likely an outbreak of lethargic encephalitis as we can now interpret it from contemporary descriptions. There were also scattered cases of typhoid fever, and even the French king suffered from this infection until he was cured by antimony, a much-disputed remedy which once again became fashionable against all sorts of fever. Thus, Louis XIV's typhoid became one of the three major influences which he ever had upon the progress of 17th century medicine. This year was also the time when a Polish military surgeon (Jan Abram a Gehema) proposed that the State provide the army surgeon with well-equipped field chests. The Pole also suggested new ways to improve the education of military surgeons.

More progress in the medical care of the masses came from France when Louis XIV's edict of 1707 ordered that, at 10 A.M. daily, all French medical schools should hold free clinics for the poor. This year is also the foundation date of the Senckenberg Foundation for the Advancement of Science. The most outstanding technical achievement of those days was the construction of a high-

pressure steam engine in Kassel to serve as a water-pump. It was made by Denis Papin, as a practical application of the principle he had earlier discovered.

Two hundred years ago (1757), on Dec. 8, the City of Dublin opened its famous obstetrical clinic, the Rotunda Hospital, as a monument of the philanthropic spirit of Dr. Mosse. Various scientific and practical medical achievements distinguish the year. Cavendish constructed the first maximum-minimum thermometer. A London optician, John Doland, patented his achromatic lenses, for which he received the Copley Medal of the Royal Society. Peter Hogström suggested that wheat fields and vegetable gardens could be protected against unseasonal frosts by smoke, a method practiced many years ago by the Peruvian Incas. At the European clinics, paracentesis of the chest (Monroe), and tapping of ovarian cysts (Hunter) was first tried.

Scientific and technical advancements were numerous in almost every year of the 19th century and in almost all fields of knowledge. The College of Physicians and Surgeons, an early medical school in New York, was founded in 1807, to be merged later into Columbia Medical College. The Swedish Medical Society was also organized at that time. Among the inventions of the year we find the first workable brick-making machine (a Russian invention), a mowing machine, a shoe-sewing machine, the camera lucida (Wollaston) to aid students in drawing, etc. On 18 August 1807, Robert Fulton had his first trip on his steamer, the *Claremont*, navigating from New York to Albany on the Hudson River. The trip took 32 hours; yet, next year, regular river trips were arranged between the two cities. Meanwhile, we should remember—Fuiton certainly had done so—that John Fitch had already built a steamer in 1785 which was carrying regular passengers on the Delaware River in the years 1786-88. Yet, this earlier inventor became poor in health, empty in purse, and broken in spirit. His ideas were ridiculed, and, in his utter despair and misery, Fitch poisoned himself in 1798. Another practical invention of the year came from Paris where Francis Appert, a cook, found the proper procedure to preserve spoilable food articles without the use of salt, solely by means of heating and packing the food in air-tight containers.

Among other discoveries of the year 1807 the most important was the success of Sir Humphry Davy in revealing the true nature of the alkaline earths and isolating their metal elements by electrolysis. Thus, the elements sodium, potassium, barium, calcium, strontium, and magnesium were discovered. Another chemist, Dalton, announced his atomic theory and the law of multiple proportions. Proust studied the chemistry of sugars and distinguished their several varieties (cane, grape, mucin, mannite). Among the physicists, Thomas Young excelled at that time. He stated that light and heat are composed of analogous vibrations. He also studied the physiology of color vision. Another achievement of the time was the differentiation of motor and sensory nerves by Sir Charles Bell, the development of endoscopy (Bozzini), etc. Contemporary physicians first read about the "vegetative nervous system" (Reil).

It is just a hundred years' space (1857) which separates us from the foundation of the Illinois State Normal University, and the beginning of the universities in Madras and Calcutta. Philadelphia doctors established the Pathological Society of that town. The year also brought together the first International Congress of Ophthalmologists at Bruxelles, and an international meeting of statisticians in Wien. Civilization penetrated deeper in Dark Africa when in 1857 Burton and Speke crossed the border mountains from Zanzibar, and discovered the eastern shore of Lake Tanganyika. Various improvements were made in the field of communications. The year 1857 witnessed the first attempt at laying the Atlantic Cable from Trinity Bay, Newfoundland, to Valencia Bay, Ireland. The cable ends were joined at sea on 5 August, but a week later the Irish end broke off. Railroads in America were

then rapidly expanding, and, during the year, a railway connection was finally established between the Mississippi River and the Atlantic Ocean.

Near Harrow, in England, Perkin erected his factory for the manufacture of mauve, thereby founding and starting the development of aniline industry. Kekulé established his valency theory of chemical elements, and Louis Pasteur described the ferment which makes milk sour. He also observed that both lactic-acid and alcoholic fermentations are related to the phenomena of life. It was also A.D. 1857 when Charles Darwin first outlined, in a letter sent to Asa Gray, his theory of gradual evolution of life; when Claude Bernard, simultaneously with Victor Hensen, discovered and isolated the glycogen in the liver; and when the studies of Hoppe-Seyler started on the chemistry of blood.

At the clinics of 1857, observations of Kussmaul and Trenner on medullary convulsions stimulated the doctors to study the physiology of the nervous system. It was then the first time that acetone was found in the urine of a diabetic (Petters). The inability of early tabetics to stand while their eyes are closed was a discovery of the same year (Romberg's sign). Various new surgical procedures were also introduced such as episiotomy (Braun), splenectomy (Simon), iridectomy for glaucoma (Graefe), amputation at the knee (Gritti), etc. In Stockholm, Zander constructed his first mechano-therapeutic apparatus. The advancements of science and medicine were scattered in so many magazines and they were so numerous that the need arose of preparing a comprehensive classified catalog of the printed articles on all subjects of science. A plan was drawn up for such a list, but several years passed by before the project could be carried out.

Part 2: Memorable Lives

Our new-year search for historical personalities leads us into Greek Antiquity, to begin with. There, in the 10th century B.C. probably ca. 907 B.C. (we say "probably" because Greek chronology before the first Olympiad is a mere guess only), almost in the Homeric era, Hesiodos was born, who in his early years was a "noteless" herdsman in Boeotia, but by the middle of the ninth century (ca. 857 B.C.) developed into the most celebrated Greek poet. As all other Boetians after him, in his *Works and Days (Erga kai hémera)* he was singing of an advancing civilization, of agriculture and peaceful peasant life, household virtues, and education of children. In spite of his aversion to violence, blood, sword and battle, he died a violent death in the hand of his enemy. Another famous man whom this year we recall from Greek history was Demokritos (b. about 457 B.C.), the laughing philosopher of Abdera. He taught a form of materialistic atomism and viewed with haughty contempt the feeble powers of man. People thought that he was crazy, and according to the legend, they invited Hippocrates to cure the philosopher of his insanity, but the great physician soon recognized the wisdom under the mask of Demokritos' foolishness.

From the first century B.C., Roman history preserved the memory of Lucullus (110-57 B.C.), the rich warrior. Licinius Lucullus was a Roman general, active in the first Mithridatic war, and a just and wise administrator who often protected the Asian people against the wrongs of Roman tax collectors. During his stay in Asia, he acquired prodigious wealth, fabulous villas at Tusculum and Neapolis, a palace and gardens in Rome. Having been unable to overcome the unscrupulous foreign politics of Pompey, his rival, Lucullus returned to Rome where he lived in proverbial luxury and splendor, spending his fortune on artists, poets, and philosophers. This kind of life earned for him the surname of "Roman Xerxes." Plutarch described his marvellous suppers, buildings and fishponds. Once, he gave Cicero a supper the cost of which was not less than 50,000 drachmas (ca. $5,000). For part of his fortune, he collected a library which he kept open for the public.

In the early fifth century of the Christian era St. John died (d. 407), one of the patri-

archs of the Greek Church, who was called *"Chrysostomos"* (Golden Mouth) for his eloquence. Ten years before his death he was made bishop of Constantinople where he spent much of his revenue on hospitals and charities. His tongue was both eloquent and sharp, especially when he criticized the manners and morals of Empress Eudoxia, of the court at large and of the contemporary clergy. Therefore, he was several times banished from his see. Once, he was driven into the wilderness, yet he used to say that "None can hurt the man who will not hurt himself." At his last banishment, however, he had to travel afoot, with his bare head exposed to the sun. He could not survive such ordeal. He was a prolific writer, and his *Homilies* are especially admired.

Over a thousand years ago, in 907 A.D., Árpád, the national hero of the Hungarians, the semi-legendary Magyar chief died. About 875 he led his people through a narrow pass in the Carpathian Mountains to the present territory of Hungary, and, after many years of war with the Slavs inhabiting the area, and after many raids into neighboring countries at the West, he secured Mid-Danubian Europe for civilization, and founded the Hungarian monarchy and a dynasty (which survived for about 300 years).

One of the most remarkable personalities of the Middle Ages was St. Elizabeth (1207-1231), daughter of Andreas II, King of Hungary. At the age of four she was betrothed to the landgrave of Thuringia, a pious man, whom she married ten years later. In Marburg, Elizabeth devoted her life to religion, charities and the education of her children. After her husband's death during Barbarossa's crusade, her brother-in-law drove her out of her dominions. The Marburgians, though they had enjoyed her benevolence, refused to give her asylum. She had to stay in the cold stable of an inn for a while. But, even when she could have later recovered her royal rights, she kept on living in self-sacrifice, taking care of the poor, washing the head and feet of the scrofulous and leprous. Her charities and scenes of her life (e.g., the loaves of bread which changed into roses in her apron) were often selected by artists for topics (Cf. Murillo). She was canonized 4 years after her death.

In the early years of the 16th century, in 1507, Cesare Borgia, the bastard of a cardinal (the later Pope Alexander VI), was killed in battle by a stroke of a spear. In spite of his many crimes and vices, he was still the ideal ruler for Machiavelli who portrayed him as the *"Principe."* The same year marks the beginning of Anne Boleyn's life (1507-36), second queen of Henry VIII whose secret marriage to this light-hearted and gay woman precipitated the setting up of the Anglican Church. She became the mother of the later Queen Elizabeth, but soon afterwards she was tried for adultery, at her king's request, and was condemned by the unanimous vote of an assembly of 26 peers on evidence which is no more available to us. She was then beheaded in the Tower. Let us also recall the births of two medical men of this period: Thomas Gale (b. 1507), a surgeon in Henry's army, and William Rondelet (b. 1507) who acquired fame chiefly as a zoologist. Gale wrote a treatise on gunshot wounds, supporting the views of Paré that bullets are not poisonous. Rondelet studied the fish of the Mediterranean. He dissected many animals, and observed the relation of embryo and mother in the placental dogfish. He published his research in 2 volumes *(De piscibus marinis)*.

About the middle of the 16th century (in 1557) several famous explorers and scientists died, such as Núñez Cabeza de Vaca, Sebastian Cabot, and Oviedo y Valdes. Núñez was an explorer and colonial officer who was wrecked on an island near the Texas coast and imprisoned by Indians. He later explored Southern Brazil, and became governor of Paraguay; however, he was falsely accused by his enemies, deposed, and imprisoned. Cabot was a mapmaker for European royalties and an explorer in the service of various countries. At the middle of the 16th century he founded a company of merchant adventurers in London who, having set out in

search of the Northeast Passage, "discovered" Russia for the earliest Russo-English trade. Oviedo y Valdes came to America as an inspector general and governor of Cartagena and Santo Domingo. He was officially designated as the historiographer of the New World. His *General and Natural History of the West Indies* (21 vol.; 1535) is also of great value for the study of renaissance medicine. He mentioned the Guaiac wood, and believed that syphilis was exported to Europe from America. Contemporary with these explorers was the Italian mathematician Niccolò Tartaglia (d. 1557) who is credited with the invention of the gunner's quadrant and the discovery of the solution of cubic equations (wrongly called "Cardan's formula"). He also wrote on fortifications, on the method of raising sunken ships, on diving bells, etc.

Anno Domini 1607 died Bartholomew Gosnold, intrepid sailor and second in command of the Jamestown Expedition of that year. Five years before his death he sailed for the coast of America from Falsmouth, approaching this country by direct crossing of the ocean. He discovered a cape near which he caught a great many cods, and named the land Cape Cod. A few days later he came to a part of an island with many vines growing upon it which he named Martha's Vineyard (later called No Man's Land).

Two clergymen, born in 1607, deserve our appreciation: Rev. Isaac Jogues (d. 1646), a saint Jesuit missionary, and Rev. John Harvard (d. 1638), a protestant minister. Jogues, the Jesuit father, was stationed among Indians south of Lake Huron, and named the strait "Sault de Ste Marie" (in 1641). He was captured by the Iroquois, tortured, and mutilated. After his rescue, he continued preaching for the Mohawks who tomahawked him. (He was canonized in 1930, the earliest American saint.) The Reverend Harvard came to America in 1637 and settled in Massachusetts. The next year he died, and left his library and half his estate of £800 to the newly founded college at "New Towne" (i.e., Cambridge) which was soon named "Harvard College" in his honor (in 1639).

The new year's greatest celebration among medical men will be the tercentenary of William Harvey (1 April 1578-3 June 1657), whose various experiments proved the exact role of the heart and lungs in the circulation of the blood (1628), and—contrary to the then existing preformation theory—the gradual build-up of the fetal parts from the egg (1651). Harvey is the greatest figure of 17th century medicine though his contemporaries did not recognize him as such. He was born in Folkstone, Kent, where his father was a yeoman. Five of his six brothers became merchants, while the sixth selected medicine. For his own medical studies, Harvey went to Italy where Padua had the most famous medical school. He graduated in 1602, and returned to London to practice medicine at St. Bartholemew's Hospital. His lectures on blood circulation started about 1616, but his famous work, *Exercitatio anatomica de motu cordis* (Frankf., 1628) was written later. He was physician to James I (1618), then to Charles I (1632). In the last years of his life he suffered much from gout, and his chief thought was the welfare and improvement of the College of Physicians. He was short of stature, with dark skin, shining black eyes and hair, and an anxious behavior, keeping his fingers always on the handle of his dagger. He died from a stroke, and was buried in the vault which Elia, his brother, built at Hampstead, Essex. Harvey's work on the circulation of the blood is the birth of physiology itself. Vesalius (in 1545) described human anatomy on the basis of dissection. Harvey's merit is in adding to observation *experiment*. In his book he set the method (experiment and induction) which has led to all later progress in physiology.

Among those born in 1657 we find Bernard Le Bovier de Fontenelle the most interesting (11 Feb. 1657-9 Jan. 1757). He was the son of a sister of the great dramatic Corneille. Being very weak at birth he was not expected to live. But he lived to be a centenarian, and

was never sick in his life until he reached 90, which his vision and hearing deteriorated. He was a dramatic writer, poet, secretary to the French Academy of Sciences, philosopher, and mathematician; indeed, Voltaire said of him that he was the most universal genius produced by the age of Louis XIV.

English people will celebrate the birthday anniversary of Henry Fielding (b. 1707), one of the greatest of their novelists and playwrights. His plays and novels painted English society as coarse as it was. The *History of Jonathan Wild* (1745) is a masterpiece of irony, and his most famous fiction, the *History of Tom Jones* (1749), will always be read the world over. Many others of his birth year became leading figures of 18th century science, as Leonard Euler, Swiss theoretical mathematician and founder of the calculus of variation; Carl Linnaeus (d. 1778), Swedish physician and the "prince of the botanists"; Count Buffon (d. 1788), French zoologist and philosopher; Sir John Pringle (d. 1782), Surgeon General of the English Army in the Continental Wars; and Johann Peter Süssmilch, German chaplain in Friedrich's army, and one of the founders of vital statistics (see his *Die Göttliche Ordnung,* etc. Berl., 1742). Euler's productive life was partly spent in Russia, partly in Prussia. To list his many publications would take at least 50 pages. Many years before his death he became blind, first in one eye, then in the other. Yet, his best works were produced in the dark period of his life.

Everyone heard of Linneaus, the botanist, but only a few people know that he was also a successful physician, practicing in Stockholm and Upsala, and attending King Adolphus. His medical career was a sort of bargain which he had to make with his father-in-law who refused to give consent to his marriage until Linné studied medicine. Yet, even after his medical graduation, his prime interest remained the vegetable kingdom. He liked to describe the flora of the countries he visited, and his system of plant classification and binary nomenclature (giving a noun for the genus, an adjective for the species) became the foundation of scientific botany (*"Systema naturae,"* Leiden, 1735; and *"Genera plantarum,"* 1737). He was so botanically minded that he even attempted a similar classification for diseases (*"Genera morborum,"* Upsala, 1763). He also described aphasia, perhaps the first time in the medical literature (1745). As a married man and the father of 7 children, he was also interested in infant nutrition *("Nutrix noverca").* He promoted breast-feeding by the mother herself, and pointed out that wet nurses might be syphilitic and their foreign milk might also transfer some undesirable quality to the child as the feeding on cow's milk would transmit the cow's stupidity. He obtained many honors during his life which ended with two years of repeated paralytic strokes.

Count Buffon, originally called Georges Louis Leclarc, was a very colorful personality of 18th century France. He had the interests of a polyhistor, as well versed in natural sciences as in mathematics and physics. Moreover, he was also a social lion in Paris, and possessed a delightfully brilliant, sometimes too pompous style. He became director of the zoological and botanical gardens of the king, and began to popularize natural history (*"Historoire naturelle,"* 44v. 1748-1804), where, with his biological and geological theories, he became a precursor of the evolutionists Lamarck and Darwin. He was extremely conceited; once he said: "The works of men of genius are few, only those of Newton, Montesquieu, Leibniz, and my own." No wonder that his son, before he died (1793) under the guillotine, shouted with pride: *"Citoyens, je me nomme Buffon!"* (Citizens, my name is Buffon).

Surgeon General Pringle was the founder of modern military medicine the principles of which he laid down in his *Observations on the Diseases of the Army* (Lond., 1752). His book discusses military sanitation, ventilation of barracks, stockades, hospital ships, etc. In another work (1776) he made suggestions to improve the conditions of the sailors. In 1743 an English commander suggested to

his French opponent on the battlefield that they should mutually respect each other's military hospitals. In his *Observations,* more than a hundred years before the first Red Cross Convention of Geneva, Pringle suggested the universal application of the same idea for all warfarers in the future.

Among the bicentennial deaths (1757) we mention John Atkins, English naval surgeon, who travelled to many parts of the world and wrote a book on ship medicine (*"The Navy Surgeon,"* Lond., 1732) which includes useful case reports and the first English description of African sleeping sickness. The worst end in that year came to Robert Francis Damiens, a 43-year old fanatic, who attempted to kill Louis XV when the king was leaving Trianon. He managed to stab the king, but he was caught and given a horrible punishment. His murderous hand was burnt at slow fire; the fleshy parts of his body were torn off by pincers; finally, he was dragged about for an hour by four horses, while into his many wounds were poured melted lead, resin, oil, and boiling wax. His remains were burnt, his house destroyed, his family banned for ever, while his brothers and sisters were compelled to change their family names.

Bicentennial birthday celebrations are due to the artist Antonio Canova, Italian sculptor and the founder of the modern classic school of sculpture. The citizens of the U.S. must gratefully recall the life of Marquis de Lafayette (1757-1834), French statesman and major-general in George Washington's army. Aviators may cherish the memory of Louis Lenormand, French mechanic and chemist who achieved the first successful parachute descent. He held an umbrella of 5-ft. diameter in each hand, and jumped off the tower of the Montpellier Observatory (wicked tongues said that he merely jumped from a second-floor window). The birth register of 1757 also includes several physicians:—Pierre Cabanis, William C. Wells, and Robert Willan. Cabanis was the physician of Mirabeau, and administrator of the Paris hospitals during the French revolution. He was the founder of a burlesque materialistic physiology, believing that the brain would produce thoughts in the way the stomach produces its digestive juice. Wells was a native American, of Charleston, S.C., but his royalist sentiments sent him back to England several times. From 1800 he worked on the staff of St. Thomas Hospital in London. He described uremic seizures, heart rheumatism and albuminuria, and wrote a famous essay on the origin of dew, for which he was awarded the Rumford Medal of the Royal Society. Willan was a dermatologist in London. He clarified the status of many skin diseases, and distinguished eight classes of dermatoses. His classification obtained for him the Fothergillian Gold Medal (in 1790). He is justly considered the founder of modern dermatology.

More difficult becomes the selection of memorable names the closer we come to our modern era. Those who died in 1807 are still representatives of the spirit of the preceding century. Thus, Angelica Kauffmann, Swiss-born painter, represents the classical school which the antiquarian Winckelmann created in Germany about the middle of the 18th century. George Atwood, English mathematician, invented a machine for the verification of the laws of acceleration of motion (it is still in use in high-school physics). Jean L. Belloq, Paris surgeon, constructed a tube which is still in use for the tamponade of badly bleeding noses. Nathaniel Hulme, surgeon of the British Navy, once received a gold medal from the Paris Medical Society for a prize essay on the skin of the newborn. It was likewise in 1807 when Benjamin Bannaker, a learned Maryland Negro, died. He had talents, and acquired considerable knowledge of mathematics. For many years, he calculated and published the *Maryland Ephemerides,* and aided in the determination of the District of Columbia boundaries.

Among the political leaders of 19th century Europe who were born in 1807 two are outstanding:—Robert Blum, German agitator and liberal leader of the 1848 revolutions in Leipzig and Wien where he was then

arrested and shot; and Giuseppe Garibaldi (d. 1882), *"il Capitano del Popolo,"* fabulous fighter for the union of Italy, also a fearless mariner and successful military commander. The American people in general will also commemorate the 1807 births of a soldier and of a poet: of Robert E. Lee (Jan. 19; d. 1870), commander in chief of the Confederate Armies whose brilliant defensive moves against Grant during the Civil War are still a topic of instruction in the military schools of the world; and of Henry W. Longfellow, who was singing the *Psalm of Life* and *The Song of Hiawatha* while teaching modern languages at Bowdoin and Harvard colleges.

The list of notable physicians of Europe who were of 1807 birth includes William Farr, the organizer of vital statistics and a student of epidemiology in England. France will celebrate Pierre Bazin, Parisian dermatologist and the describer of several new skin diseases ("erythema induratum," etc.); and August Nélaton, surgeon at the Hôpital St. Louis, and inventor of the soft-rubber catheter and of many other surgical instruments (cf. Nélaton's "line").

Our searchlight spots three Americans among the 1807 crop of scholars: Jean Louis Rodolphe Agassiz (d. 1873), Gurdon Buck (d. 1877), and John Watson (d. 1863). Watson was of Irish extraction. He is remembered for performing the first esophagatomy for the relief of a stricture in the gullet. Buck was a well-educated surgeon of the pre-Listerian era, practicing orthopedic and plastic surgery in New York. He introduced several new surgical methods, described a deep fascia (1848), and constructed an extension apparatus (1867) for treatment of fractures of the thigh. Agassiz was of Swiss origin. During his medical student years in München he became interested in ichthyology, comparative anatomy, and zoology. After 1846 he moved to America, and at various universities and medical schools (Charleston, Cornell, Harvard) he was teaching his favorite subjects. He was one of the founders of the Harvard Comparative Zoological Museum (1859). His main work was *Contributions to the Natural History of the United States* (4v.; Bost., 1857-62). As a Swiss he was also interested in glaciers, and he was the one who originated the present glacial theory (1840). Ezra Cornell, American philanthropist and founder of Cornell University in Ithaca, N.Y., was also born in 1807.

One hundred years ago the entire French nation, and probably the whole world, mourned the loss of the poets Jean Pierre Béranger, and Alfred de Musset, and of Eugene Sut, author of *Mysteries of Paris* and of other romantic novels. Musset once studied medicine and law, while Sut served six years as a naval surgeon. In the same year there was buried Karl Czerny, Austrian pianist, one of Beethoven's pupils and himself the master of Liszt; his several piano exercises are still helping the youngsters in the various levels of fingering, velocity and virtuosity. Daniel Macmillan, bookseller and founder of the publishing firm of that name was Scotland's loss in 1857.

The medical and scientific world of 1857 lost Louis Jacques Thénard (b. 1777), French chemist and discover of many new compounds, including hydrogen peroxide (in 1818); and Jean Baptist Baudens, French military surgeon, who was once a professor at the Val-de-Grace military medical school, and chief surgeon of the French Army in the Crimean War. He constructed an apparatus for the treatment of fractures, and wrote on gunshot wounds.

Artists of the United States will commemorate the death of Thomas Crawford (1814-57), New York sculptor and pupil of Thorvaldsen who spent most of his adult life in Rome. His most conspicuous works are the 19½ ft. tall armed figure of *Liberty* on the dome of the Capitol in Washington, the pediment of the Senate portico, and the bronze doors of the Senate. In the same year there died William Colgate, who made his millions with the chandlery and soap manufacturing business and became the benefactor

of Madison (now Colgate) University at Hamilton, N.Y. We should not forget William Learned Marcy, American lawyer and statesman, who in one of his addresses to the Senate (1832) encouraged the "spoils system" in government, stating that he could see nothing wrong in the rule that to the victor belong the spoils. William C. Redfield (b. 1789), American entrepreneur and meteorologist also died a hundred years ago. Though he was a saddler and harness maker by trade, he was interested in the advancement of science, organized the American Association for the Advancement of Science in 1848 and became its first president. He studied gales and hurricanes. In the same year, the American medical profession lost Elisha Kent Kane (b. 1820), young Arctic explorer. He was surgeon in the U. S. Navy and in the Coastal Survey, and took part in both Grinnell Arctic expeditions (1850; 1853) as a medical officer, publishing his experiences in several volumes.

The two most prominent personalities among the 1857 losses of medicine and science appear to be August Comte (b. 1798), the French founder of positivistic philosophy, and Marshall Hall (b. 1790), English physiologist and practitioner, the discoverer of reflex action. Comte was a mathematician and philosopher who wanted to restrict philosophical inquiry to problems that could be approached by scientific methods, without any speculation. The idol of his youth was Benjamin Franklin whom he called the modern Socrates. In his *"Cours de philosophie positive"* (6v.; 1830-42) he considered metaphysics a stage of arrested development, and puerilities. For him philosophy was not a separate discipline but the coordination of all sciences for the improvement of human life. He also thought that the world needs a new religion for its redemption, the Religion of Humanity (which he described in his *"Catéchisme positiviste,"* 1852), and he spent his old age in devising a hierarchy of priesthood for this new religion, together with a calendar in which heroes of human progress replaced the daily names of saints. Comte wanted to reform the world, but he had difficulties in managing his own home and life. When about 30 years of age, he had already suffered a mental breakdown, and attempted suicide in the Siene. Approaching sixty, he died insane.

Marshall Hall, the son of a cottonspinner practical chemist, soon after his graduation from Edinburgh, started a campaign against blood-letting, then universally practiced in Europe. It was during his London practice that he recognized the purpose and function of the spinal cord (which until then was thought to be a mere bundle of nerves), and the difference between unconscious reflex and willful action (1832). In 1853 Hall visited the U.S., Canada, and Cuba, and during his travel he made also some demonstrations to American physicians about the functions of the reflex system of the body. These demonstrations were made by vivisections of frogs and snakes. His New Orleans audience provided the experiments with an alligator. Besides his reflexological studies, he also introduced a new method of artificial respiration in case of drowning (1855-56). He died from cancer of the esophagus that had put him into a state of inanition.

There are many familiar figures among the 1857 generation of Europeans who contributed to human progress and who had been also in daily live contact with some of us. The Ukrainian Joseph Conrad (Korzeniowski) was first a sailor, then he grew into the modern master of English prose in his brilliant tales. Pope Pius XI created Vatican City with the Lateran Treaty and the aid of the Italian government. The world of science will celebrate the German Heinrich Hertz, whose discoveries in physics led to the development of wireless telegraphy and radio; John Jolly, Irish physicist who perfected a method of radium therapy; and Karl Pearson, pupil of Galton and statistician who applied mathematics to biological and genetic problems.

Centennial birth anniversaries are due to a long series of European physicians and surgeons who distinguished themselves by

inventions and discoveries in one or another special branch of medical sciences: Theodor Escherich in bacteriology; Eugene Gley in endocrinology; James A. Adams with his suspension of the uterus; Vasili Stroganov with his treatment of eclampsia; Pierre Lagrange in ophthalmology; Sir Frederick Smith by his histories of veterinary medicine; Hendrik Zwaardemaker with his studies on the physiology of smelling; Sir Ernest Budge with his excavations in the Middle East and his studies in Syrian and Assyrian medicine; and Axel Munthe with his delightful *Story of San Michele* (1929).

Psychologists and psychiatrists will give thanks to the French Alfred Binet for his establishing the IQ in mental measurements; to Eugen Bleuler for his studies on dementia praecox; even to Émile Coué, French pharmacist, for his system of autosuggestive self-psychotherapy (couéism). The neurologists and neurosurgeons will celebrate the lives of the French-Polish Joseph Babinski, and of Vladimir Behterev. Tropical medicine was greatly advanced by Sir Ronald Ross (d. 1932), English military surgeon. Ross was born in India, and, after his medical graduation, when he could not get any other position in England, he entered the Indian Medical Service. Sadly he wrote:

> "Under the granite arch
> Of Duty, spann'd above
> Out of ourself we march
> Away from life and love."

His studies demonstrated the role of the mosquito in the transmission of malarial fever. For this research he was awarded the Nobel Prize in 1902. He was an universal genius, music composer, poet and novelist. Yet, he died in poverty, though in his own memorial institution which the Prince of Wales had founded for the study of tropical diseases.

In all fields of human activities the political and cultural history of the United States also abounds in outstanding persons who were born a century ago. Here are some of the politicians, industrialists, and inventors: Henry C. Folger, oil baron and collector of Shakespeareana who created a special library in Washington and left his fortune as an endowment for it; Elwood Haynes, the builder of the oldest (1893) horseless carriage and inventor of stainless steel (pat. 1919); William H. Taft (d. 1930), a Republican and the 27th president of the U.S. (1909-13); Nikola Tesla, immigrant from Austria-Hungary, inventor of various electric devices and of the Tesla current (1898).

American arts and sciences will also have many centennial birth anniversaries to commemorate. The *Sleeping Faun* will perhaps wake up and play his flute, and at the entrance of the N.Y. Public Library the lions will begin to purr to honor their creator, Edward C. Potter. The Zuñi pueblos may also have a fitting legend ready for Frank H. Cushing, the ethnologist who lived among them in New Mexico for five years in search of myths and folk tales. American housewives may cook a choice birthday cake for the memory of Miss Francis Farmer who began to teach them the culinary art and dietetics in her School of Cookery at Boston (1902). Thorstein B. Veblen, the "bad boy" of American sociologists and economists, also belongs to the 1857 generation. He did not find favor with his superiors at the universities where he was teaching, for he was an original and fearless thinker. His *Theory of the Leisure Class* (1899) and *Theory of Business Enterprise* (1904) are satyrical comments on contemporary culture. From his chair at the very university subsidized by John D. Rockefeller he attacked the rich and showed deep contempt for business enterprise. In the twenties he was employed by the Food Administration in Washington. At the end of his life he became entangled in communism. Ironically, he died in the year (1929) when the Great Depression started.

The commemorative Calendar of the American medical profession also has its centennial heroes of progress. For 39 years, John Jacob Abel (d. 1938) worked as professor of pharmacology at Johns Hopkins University, and after his retirement he became director of the Endocrine Laboratory.

He was one of the truly great American research men, and the account of his achievements makes a very long list (epinephrine, Amanita poisons, phthalein dyes, bufagin, amino acids, dialysis of blood, tissue histamine, synthesis of insulin, etc.). Boston will bow to the memory of John Templeton Bowen, dermatologist and describer of a type of precancerous dermatosis (Bowen's disease; 1912). Chicago was the scene of the activities of two memorable surgeons: Franklin H. Martin, founder of the American College of Surgeons and of the magazine *Surgery, Gynecology and Obstetrics;* and John Benjamin Murphy, the inventor of a button for sutureless anastomosis on intestinal segments (1892) and of a slow-drip of saline into the lower bowel (1908). Already in 1896 he repaired wounded arteries by means of end-to-end union.

Part 3. Memorable Books

In the world of letters this year's search leads us to 57 B.C., the date when the Roman Lucretius Carus composed his poem *De Rerum Natura* ("On the Nature of Things"). This poem is called by some "the most marvellous performance in all antique literature." In our Atomic Age the work of Lucretius assumes special significance since in a poetic shape it admirably explains the Greek atomic theory, adumbrated by Demokritos and systematized by Epikuros. The poem is also a remarkable source of allusions to anatomy, physiology and hygiene of the ancient world.

The materialistic and pessimistic Lucretius was contemporary to the warfaring Pompey and Caesar. Thus, he certainly had every reason to look for peace and tranquillity. He taught that soul and mind were evolved with the body, grew with the growth of the body, and died with the death of it. Everywhere he saw atoms, space, evolution and dissolution; everything seemed aflow, and nothing remained stationary. Thus, in the face of war and inevitable death—the poet says—nothing is as wise as ataraxia, which is

"To look at all things with a mind at peace."

But the poet could not follow his own advice. He committed suicide (d. 55) in a fit of madness caused by the love potion given to him by his wife. His poem has been recopied in many ancient manuscripts, printed the first time in 1473, and since then reprinted many times. It remains surely the best seller for centuries!

Another masterpiece of the world literature is the *Divina Commedia* of Dante. Italian historians assure us that the composition of this great poem began with the writing of the *Inferno* which Dante started in 1307, during a year of his wanderings.

After the invention of printing in Europe, the first medical publication was a single-sheet *Almanac* which Gutenberg himself printed in 1457. Having a short paragraph for each month, the anonymous print tells us simple rules for bloodletting and purgation. As an early relic of medical printing it is now shown in the Paris National Library. Another copy would surely bring a fortune to its possessor, should it ever be put up for sale.

Another early publication which is now valuable as an "Americanum" is a world atlas published in 1507 by Martin Waldseemüller. It contains 12 woodcuts some of which call the New World the first time by the name *"America."* Truly, this was just the printer's error, a grave mistake to name the new land after Amerigo Vespucci whose claim for the discovery of the mainland before Columbus was unfounded. But the name stuck!

At the renaissance book-markets in the same year went on sale a work of Antonio Benivieni, published after his death under the title "On Some Hidden and Amazing Causes of Diseases and Cures" (*De abditis nonnullis ac mirandis morborum et sanationum causis;* Fir., 1507), containing a surprisingly large number of post-mortem examinations. In the following centuries, the work was often reprinted, and recently translated into English.

Almost forgotten now is the book of Sir John Floyer which he published in 1707 in

the belief that he could popularize pulse-taking at the bedside of the patient. His *Physician's Pulse Watch* tried to get the pulse-rate by timing its beats with a watch which ran exactly for one minute. Yet, many years passed by before the doctor with a watch in hand became a common sight.

Perhaps the greatest event among this year's memorabilia in literature is the foundation of two medical journals which are still current today and have their hundred-year anniversaries in 1957: one is the *British Medical Journal,* published by the British Medical Association (founded in 1832); the other is the *Orvosi Hetilap* ("Medical Weekly") a Hungarian medical journal founded by Lajos Markusovszky during one of the country's darkest periods of foreign oppression and absolutism, and backed by the staff of the four medical faculties of Hungary. In the life of a serial publication one-hundred years mean a very great age, and a very excellent health and constitution. *Ad multos annos!*

A hundred years ago the subscribers of the Atlantic Monthly enjoyed reading the first installments of *The Autocrat at the Breakfast Table* written by Oliver Wendell Holmes, M.D. Dr. Holmes was first a lawyer, then he studied medicine and became professor of anatomy at Dartmouth and Harvard. He felt himself, however, more a literary man and poet than a physician, often referring to himself as "a loiterer by the loaves of Hippocrene."

Fifty Years Ago

Fifty years ago British women demanded a Female Suffrage Bill. Belgium annexed the Congo, and French troops occupied Morocco. Japan took Korea, and there was a revolution in Persia. In Jamaica, Kingston was destroyed by earthquake and fire, and in Canada the bridge over the St. Lawrence river (Quebec) collapsed causing some casualties. New Zealand became a dominion. Russia was plagued by famine, terrorist outrages, strikes, military mutiny at Kiev, and naval mutiny at Vladivostok, while at The Hague people laid the foundation stone of the Carnegie Peace Palace. In October Marconi established the first wireless telegraph from Glace Bay, Nova Scotia to Clifden, Ireland, and the quick news service for the Press was secured.

In the United States, people were talking of the tonnage of "Big Bill" Taft, the Secretary of War, and they invented jokes about this man whom they regarded as good medicine for the national nerves. Teddy Roosevelt, the president of the U.S., being an authority on several species of American mammals and birds, extended his fight against the mushrooming writers who fictionized natural science by their various animal stories. He called them Nature-Fakers, and included among them Charles Roberts, and Jack London (whose *"White Fang,"* a story of a bulldog against a great northern wolf, Roosevelt called a "closet product"). His ire was directed especially against the "true stories" of Rev. William Long, who then counterattacked so successfully that a symposium of naturalists had finally to come to Roosevelt's rescue. In newspaper headlines, cartoons, and editorials, the controversy and word battle had raged through many months of 1907.

The country suffered much from continuous strikes. The Chicago railroad workers struck in February, the ship builders of the Great Lakes in March, the St. Louis brewery employees in April, the New York and San Francisco longshoremen and the New England trackmen in May, the ice-wagon drivers of New York in June, the trainmen of Colorado in August, the telegraphers in the Fall. Organized labor and its unscrupulous tactics were thoroughly exposed by young Borah during the trial of Haywood who was charged with being accessory to the murder of the ex-governor of Idaho. Until 1907 there had been a trend toward socialism in America, but the excess of demagoguery of the labor leaders during the trial acted as a deterrent.

In 1907, Oklahoma was admitted to the Union as the 46th state. Congress passed the

White Slave Act, and the Meat Inspection Act, and appointed the Inland Waterway Commission. The country celebrated the first English settlement at Jamestown by a Tercentenary Exposition at which occasion the first all-steel Pullman sleeping car (called "Jamestown") was also put in operation. Wealthy people continued to give away their money for the welfare of the nation. Rockefeller gave 32 millions for establishing a General Education Board. Mrs. Sage, with ten millions, started the Russell Sage Foundation "for improvement of social and living conditions" in the U.S., while in Pittsburgh the Carnegie Institute was created with 6 millions. Indeed, the country looked prosperous, and the immigration from abroad reached another peak (1,285,349).

Then, in late October 1907, came the financial collapse which was already foreseen in 1906. Fifty years ago, all banks stood alone, and each had to have its own reserve to meet the demand of the depositors. The "Roosevelt Panic" of 1907 was a currency panic, and not a business depression. It started on 21 October at the Knickerbocker Trust Company in New York. There was a run of depositors on the bank, which precipitated similar runs elsewhere throughout the country. The desire to prevent such troubles in the future led to the reform of the American monetary system and the creation (1913) of a Federal Reserve System.

In the world of literature, a definite school of writing reached its peak under the influence of Teddy Roosevelt. The "literature of exposure" formed the typical current literature of the American daily life in 1907. None of the popular American fictions of 1907 are now remembered, except perhaps the *"Three Weeks"* of Elinor Glyn, a book which started a sexy type of literature. It was in Syracuse, N.Y., that the theater-going public first heard the beautiful melodies of the *Merry Widow* operetta, which also brought a brief revival to the waltz. People were offered another brand of entertainment, called the "Follies," in which songs, dances, girls, and vaudeville shows were scrambled together chiefly for male audiences eager to see Nora Bayes, the chief attraction.

The moral changes, economic conditions of the times, and American national interests of 1907 found their expression in the popular songs, too. Irish crowds in New York City first heard the words of George M. Cohan's "Harrigan":

> "H - A - double R - I
> G - A - N spells Harrigan."

Childhood sentiments were recalled by "School Days" and other "kid songs." A number of coon songs, expressing the miseries of the new Negro in the white man's civilization, were still in vogue, such as "The Best I Get Is: Much Obliged To You," or "Come Along My Mandy, Sweet As Sugar Candy." The Italian immigrant lad was pouring out his pathetic complaint in "My Marintch," because his Maria has become much-too-much Americanized and was now dancing a new type of shimmy.

> "Marintch she make-a
> De hootch-a-ma-kootch
> Down at Coney Isle."

About 1907 the "quick lunch" became established as an American institution. The ladies of the cities began to wear "shirtwaists," popularly called "peek-a-boo" for the embroidered perforations that permitted a little of the feminine skin to show through. Skirts were, however, long and wide, reaching to the ankle, indeed sweeping the street. Hats were very large and bird-trimmed. Americans began to like the European craze of the hour-glass shaped "diabolo" which was spun on a cord held by two sticks. In May 1907 a fleet of "taximeter cabs" were imported from Paris to New York City.

Fifty years ago a number of educational and cultural institutions started their lives, such as the Ohio University College of Medicine, the Wisconsin University Medical School, the Royal Society of Tropical Medicine in London, the International Bureau against Alcoholism in Stockholm, the International Association of Medical Museums in Montreal, etc. Sudhof founded the German

medico-historical *Archiv* (bearing now his name), and started his memoir-like Studies in Medical History. Bergson won universal fame with his anti-Darwinian, anti-evolutionary masterpiece *"Creative Evolution,"* and Alfred Adler explained his theory of the inferiority complex in one of the year's best sellers (*"Studie über Minderwertigkeit von Organen,"* Berl., 1907).

Throughout the 1907 year all leading political powers were kept busy by building airships for the conquest of the atmosphere around us. The American engineer Cody built the first military airship, the *"Nulli secundus,"* for the English Army. France built the dirigibles *"Ville de Paris"* and the *"Patrie."* Russia's first airship was also tested in late July. Graf Zeppelin, after years of experimentation, finally succeeded in constructing a ship which travelled 360 km in 6 hours, at 15 meters per sec. Schwarzlose fabricated a machine-gun for the Austrian Army. Other technological achievements of the year were a writing machine for the blind, the first giant locomotive in America, the invention of the single-track railroad (Brennan), and Thomas Alva Edison's suggestion that houses should be built from cement poured into forms to reduce the expenses of construction.

Fifty years ago William Ramsay exposed a copper salt solution to the effect of radium emanation; thereafter, he discovered the formation of lithium in the solution. This was the first example of the splitting of atom. The study of radium led to the discovery of "ionium" or mesothorium, the separation of helium from mineral waters, etc. X-rays were first used for the study of stones (Branco). Lutecium, a new element (at.wt 175.2) was discovered (Urbain). Chemical literature became so tremendous that it was decided to publish the *Chemical Abstracts.*

In biology and medicine, the progress of 1907 was very important. The medical world first heard of antianaphylaxis (Besredka), ultrafiltration by means of colloids (Bechhold), ophthalmoreaction to tuberculin (Eisner-Calmette), "serodiagnosis" (Wassermann), tuberculin test (Pirquet), etc. The year's Nobel Prize in medicine went to Laveran for his discovery of the malaria plasmodium (in 1880). Clinicians and pathologists described asthenic constitution (Stiller), exudative diathesis (Czerny), the dengue virus (Ashburn & Craig), etc. In therapy, the blessings of various specific sera were exploited (pneumonia, dysentery, meningitis, measles).

The world at large mourned in 1907 Edward Grieg, Norwegian composer of the two *Peer Gynt* suites and of beautiful folksongs; René Sully Prudhomme, French poet and critic who was the first to be awarded with the literature Nobel Prize; Lord Kelvin, the physicist; Marcelin Berthelot, the father of thermochemistry; Ernst v. Bergmann, pioneer German surgeon; Sir Michael Foster, founder of the Cambridge school of physiology; and Dimitri Ivanovich Mendeleev, creator of the periodic system of chemical elements.

Fifty years ago the United States lost August Saint-Gaudens, sculptor, whose *The Puritan* stands in Springfield, Mass. James Carroll, collaborator of Walter Reed in the yellow-fever research, was buried in the same year. Other notable deceased of the year were John Carter Brown, banker at Providence, R.I., and the benefactor of Brown University; and August Heilprin, Hungarian-American geologist and famous explorer of the Florida Everglades, of Bermuda, Alaska and the Arctics.

* * *

Now, the Memorial Calendar closes, and the searchlight is turned off for another year.

It seems as if in the past the span of changes had been much longer than the life-span of a single man; people could adapt themselves to fixed conditions. Now, the time-span of changes is much shorter than the length of a human life; people must face frequent changes by rapidly moving forces.

Our quick retrospective glance over human history may convince us, though, that it is

still safe to assume that tradition and principles will persist, and human nature will remain substantially the same for years to come as it had been yesteryear, or a hundred and thousand yesteryears ago.

Since the first glimmering of the dawn of culture, the trend of human progress has been pointing upwards, toward the ideal goal of more perfection. On the road of progress, there is always another turn, with a view brighter and fresher. Yet, the spiritual foundation of the travelers of all futures is the past, and the beacons are the same to lure, though lives, suns, and systems must come and go:

"Globed from the atoms, falling slow and swift
I see the suns, I see the systems lift
Their forms; and even the systems and their suns
Shall fall back slowly to the eternal drift."
(LUCRETIUS CARUS, *De Rerum Natura.*)

U. S. Air Force Photo

Major General Dan C. Ogle (left), Surgeon General of the Air Force, receives an oil painting depicting a Flight Surgeon as he makes his rounds somewhere in the Middle East. The picture is entitled "New Country Doctor Makes World Wide Rounds" and is one of a series produced by Douglas Aircraft Company. Others in photo: Maj. Gen. Wm. Powell, Jr., Deputy Surgeon General; Mr. L. E. Tollefson, and Mr. S. W. Cebuhar, both of Dougas Aircraft Company.

A Short History of Diphtheria

By
LOUIS H. RODDIS, M.D., F.A.C.P.*

THE fact that diphtheria is an almost completely preventible disease attracts particular attention to the increase in the incidence in the United States in the early part of 1956. In the last sixty years the medical profession has developed effective weapons for both the prevention and treatment of diphtheria yet many cases occur annually in this country with a considerable number of deaths. It is essentially a disease of childhood and this, with the painful suffocating death it so often causes; the terror it excites in the family and community; the serious complications and sequelae; and the dangers to attendents; any neglect of means of prevention can scarcely be condoned.

A good starting point for a brief study and history of diphtheria is the definition by Sir William Osler more than forty years ago. The master clinician epitomizes it thus:

"A specific infectious disease, characterized by a local fibrinous exudate, usually upon the mucous membrane of the throat, and by constitutional symptoms due to toxins produced at the site of the lesion. The presence of the diphtheria bacillus is the criterion by which diphtheria is distinguished from other forms of membranous inflammation."

Age is the principal factor in susceptibility, 98 per cent of the cases being between the ages of one and ten years. The infant is usually not attacked due to immunity conferred by the mother, particularly if the baby is breast fed. In the last decade of the 19th century in New York City, 81 per cent of deaths from diphtheria were in children from one to five, and 17 per cent from five to ten years of age. The late fall and early winter months are the periods of greatest incidence in the United States. The disease is uncommon in the tropics and is less frequent and less virulent in any mild climate. The usual mode of transmission is by droplet infection from the acute case or by contact with articles used by the patient. Physicians and nurses are exposed to serious danger in caring for diphtheria cases and the utmost precautions should be taken. Osler states that "few diseases have proved more fatal to physicians and nurses in the past." Healthy carriers play some part in perpetuating the disease in endemic form. Formerly, milk was an important source of epidemics but the general use of pasteurized dairy products has lessened this danger. The opposition to pasteurization as to many other health measures is well illustrated by this actual incident. A young mother with a four year old boy asked for a bottle of pasteurized milk at a small store kept by two women. They had only raw milk for sale and urged her to buy that as better for the child, saying "that pasteurization cooked all the life out of the milk." The young mother who had been informed that the germs of tuberculosis, scarlet fever, diphtheria, and other diseases might be carried in milk replied that "it was the life that she wanted cooked out of it."

The three main types of diphtheria, pharyngeal, laryngeal, and nasal, named from the site of the local lesion are familiar to every physician. The incubation period is from two to seven days. Of the complications and sequelae the paralysis of the soft palate and consequent regurgitation through the nose on attempts to swallow is one of the most striking, as is involvement of the phrenic nerve with resultant diaphragmatic paralysis. The bundle of His may show marked changes and heart block occur. Before the advent of the sulfonamides and antibiotics bronchopneumonia was the most frequent and fatal complication. There is much variation in the virulence of the organism

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and in some epidemics there is a heavy loss of life, in others scarcely a death is seen.

The history of diphtheria is of much interest for it furnishes a complete picture of the virtual conquest of an important infectious disease. The landmarks in that conquest may be conveniently outlined as follows:

1. The first clinical description by a physician was that of Aretaeus of Cappadocia about 70 A.D.
2. Reference to what was undoubtedly diphtheria is found in the Babylonian Talmud (352-427 A.D.). The Hebrew people feared the disease to such an extent that the shopkar, or ceremonial and alarm horn, was blown on the report of a single case though this was not done with most other infectious conditions until three cases occurred.
3. First description of diphtheria in England by John Fothergill in 1748, and the first description of the characteristic paralysis of the soft palate was by John Huxham in 1757.
4. Probably the first account in what is now the United States was that of Josiah Bartlett of New Hampshire in 1754. He called it "angina maligna." In 1771 Samuel Bard of New York published an essay on the disease which he called by the striking name of "angina suffocativa."
5. Its present name was given in 1826 by the French clinician, Pierre Bretonneau. He took the Greek word for membrane and turned it into the French as "dipheritie."
6. The isolation of the bacillus and demonstration of its causative relationship to the disease in 1883-4 by Edwin Klebs and Friedrich Loeffler. Still known as the Klebs-Loeffler bacillus to medical men throughout the world.
7. The discovery of diphtheria antitoxin by Emil von Behring, 1890-93. Clinical use began in 1894.
8. The development of toxin-antitoxin mixtures for active immunization. This was done by Behring in about 1893.
9. Routine laboratory diagnosis of diphtheria initiated by F. S. Wesbrook in Minnesota in 1895.
10. Development of diphtheria toxoid for active immunization. The toxin is not stable and changes to the toxoid. This is scarcely at all toxic and can be used to confer immunity.
11. The Schick Test, the skin reaction observed and adapted to clinical use by Bela Schick in 1913 provided a simple means of determining individual immunity.

Courtesy of Armed Forces Medical Library

EMIL VON BEHRING (1854-1917)

Developed diphtheria antitoxin. First physician to receive the Nobel Prize in Medicine (1901).

The use of antibiotics and sulfonamides in treatment may be said to round to an even dozen the measures that are available to complete the medical victory over the disease. Of all these advances that of Behring, the discovery of diphtheria antitoxin, was perhaps the most significant for it provided the first method of passive immunization against a disease, almost as important a milestone in medical history as Jenner's discovery of active immunization in smallpox vaccination. Furthermore the development of the

toxin-antitoxin mixture and of toxoid furnished active immunization against diptheria and opened the way for the similar prophylaxis of other conditions such as tetanus. The first Nobel Prize in Medicine was given von Behring in 1901 and certainly no more fitting recipient could have been found to lead this medical roll of honor.

With the advent of diphtheria antitoxin there was a spectacular fall in the death rate from the disease. In 150 cities of the United States before the general use of antitoxin the mortality rate in 183,256 cases was 38.4 per cent. In 1933 in a population of 37 million in 88 United States cities, the deaths were only 2.32 per 100,000, a truly amazing decline in diphtheria deaths.[1] From 1944 to 1953 the number of cases varied from over 18,000 to nearly 2,500. There was also a progressive decline as is shown by the figures for each of the years.

Year	No. of Cases	Year	No. of Cases[2]
1944	14,150	1949	7,962
1945	18,675	1950	5,796
1946	16,354	1951	3,983
1947	12,262	1952	2,960
1948	9,493	1953	2,355

Deaths from diphtheria in 1950, 1951 and 1952 were respectively 410, 302, and 217.[3] These statistics from the U. S. Public Health Service reports show that some thousands of cases of diphtheria are seen in the United States annually, and while the death rate has been kept low by early diagnosis and treatment a significant number of deaths occur and considerable epidemics still take place. In 1956 there has been so far a definite increase over the previous year in the number of cases reported and epidemics have caused alarm in some cities.

In view of the fact that we know the causative organism of diphtheria, the mode of transmission, incidence, have a test for individual immunity, simple and safe methods for both active and passive immunization, and specific and effective treatment for the disease, it is a cause for wonder that it is still prevalent and a threat, particularly to the lives of children. What are the reasons for the continuance of the disease in the United States when we have all the means at our disposal to virtually put an end to it? A careful consideration of the matter leads to the following as providing some of the answers to the question.

A considerable number of people refuse to take advantage of the simple means of disease prevention available. There are in this country a large number of health and religious cults that either disregard or oppose modern medical disease prevention or treatment. A recent survey indicates that as many as ten per cent of the population in some areas can be included in such groups. Another segment of the population is consciously or unconsciously hostile to, or fearful of medical measures and offer at least passive resistance to them. In many cases it is no more than the shrinking of the individual from minor medical procedures such as the insertion of a hypodermic needle; but it may also be manifested in active opposition to a health program. The large size of our country and the diversity of the people in racial, national, religious, and cultural backgrounds also present many difficulties in dealing with disease prevention.

Thus, although the medical profession over the course of the years has produced effective methods for the control of diphtheria, there are obstacles still to be overcome if complete eradication of the disease is to be accomplished.

The military services of our own and other nations have had little difficulty with diphtheria. This is due in part to the personnel being in the age groups of great immunity. However, the constant medical observation, the early detection, isolation, and treatment of cases, and the immediate immunization of those found susceptible to the disease prevents diphtheria being a serious threat to military forces. The influence of military medicine is probably seen in the decline of diphtheria in this country in the decade following World War II as indicated in the reports of the Public Health Service previously given. Many children of military de-

pendents came under the care of medical officers who almost without exception carried out routine immunization programs with diphtheria toxoid as well as smallpox vaccination, and against other conditions such as pertussis and tetanus. This certainly had its effects on the incidence of these diseases in the years that followed.

As the history of diphtheria shows, medical science has provided the means to eradicate the disease (and some other infectious conditions) from this country. That this has not been done is due to the failure of our society to make full use of the medical knowledge and facilities available. We may ask ourselves as to what more can be done to bring the incidence to practically the vanishing point. At least two things would seem to be necessary.

First, although educational programs do not reach or have little effects on certain segments of the population, they should be continued, extended, and directed by the proper medical societies. Though some of the information will fall on deaf ears, those who can hear and want to hear should not be deprived of the knowledge of what modern medical science can do to prevent diphtheria. It is with the cooperation of this group that the second step can be taken. This is to bring about legislation in the 48 states, the Federal District, and the territories to make immunization against diphtheria compulsory for all children in infancy and on entrance to school if not immune at that time. Such a program could be extended to include tetanus, pertussis, and smallpox vaccination at the proper age periods. There is no doubt that if such a "benevolent immunization" plan could be legalized it would reduce to virtually zero the incidence of diphtheria in the United States.

References

[1] Osler, The Principles and Practice of Medicine, 12th edition. Revision by Thomas McCrae, M.D. Appleton-Century Co. 1935.

[2] Morbidity and Mortality Weekly Report, U. S. Department of Health, Education, and Welfare. National Office of Vital Statistics. Sept. 30, 1954. Annual. Supplement. Reported Incidence of Notifiable Diseases in the United States. 1953.

[3] Deaths and Crude Death Rates for Each Cause, United States, 1950-52. U. S. Department of Health, Education, and Welfare. October 19, 1954.

EDITORIALS

Something New

WE ALL like something new. We look forward to the new things. The automobile industry has so indoctrinated us—the American people—that for months we look forward to the new model cars. The television people create in our minds the desire for the latest model set, and now that set must be one for color television. We are urged to get the latest model refrigerator, the latest freezer, the latest dishwasher, or what may you want.

New things are not confined solely to the material things of our daily life but even the systems of doing things in our places of employment are constantly changing. Awards are made for improvements in methods. Changes come with progress. Progress comes with changes.

So it is with the years. After plodding along for 365 days we close the book on the year and start again with another book of 356 pages. We do look forward to this new book—this New Year.

Each one of us has his own ideas as to what the pages of the new book should show when they are filled. We all expect to fill every one of those 365 pages. But, of course, each one of us knows that some books will never be completed. We have the firm conviction, however, that the incomplete book will not be ours.

That conviction is the right one for few would accomplish anything if they felt the full 365 pages would not be turned in the year.

There is much to accomplish in this new year. So with an attitude of faith in our government, in our business, in ourselves, let us resolve to put ourselves to the task of living each day of the year in the very best way we can—not selfishly but thoughtfully of the rights of our fellow man. The 365 days of 1957 will then be profitable ones to look back upon.

Basic Doctor

THE general purpose of any university education is to train the mind of the young person so that he would be later able to form a balanced judgement from any collection of observed data. Being of the higher university level, a medical school should also produce doctors who are basically thinkers rather than full-fledged specialists. The rest of a medical man's future formation should be left to postgraduate studies. But is the medical school of today able to train the mind?

In a recent address, G. W. Pickering, professor of medicine at London University, criticized the present day medical education which in his opinion compares very unfavorably with the education that the universities give in the interpretation of the classics. It is unquestionable that the curriculum of the medical student cannot train a man so that he would be equally well versed in all specialties of medicine. Moreover, neither the content and methods of teaching of the medical course, nor our examination system provide a satisfactory educational training of the student's mind.

Most of the medical student's time is spent in lecture halls and laboratories, and his curriculum rarely encourages original work or the preparation of material for his teachers to correct. In the school library, nearly all the student reads is textbooks and his lecture notes.

The method of medical examination is also such that it does test, not the young man's discriminatory power or ability of judg-

ment, but his capacity to reproduce material learned from the pages of textbooks or notes of lectures. All of us are familiar with the typical question at the final examination: "Describe the symptoms, signs, complications, and treatment of regional ileitis"!

We may agree with the British professor that, as it is evident from such questions, the medical education in the schools is not directed to training the student's mind as a discriminating instrument but merely as a temporary storehouse for miscellaneous information collected from books and retained for long enough to be reproduced at the moment of the examination.

This great deficiency of our modern medical education looks more serious when we remember that the ability of a man to learn from his own experience and to keep abreast with the rapid stream of advancing medical knowledge depends wholly on those very qualities in which his University leaves him defective. Indeed, we are in need of medical reforms to thoroughly transform the system of medical education so that it be primarily designed, not for the formation of any *particular* kind of doctor, but for the provision of the basic foundation on which shall be built the special requirements of the various specialties.

The *basic doctor* of mere abstraction is therefore a man whose mind is well trained to collect and to verify facts concerning health and disease in man so that he can form a balanced judgment on issues affecting the life of both individuals and groups.

It stands to reason that the medical curriculum for our basic doctor should be very liberal and elastic. Its quality and quantity should be such that it would afford the student to develop his own mind. There are many ways to Rome, of course. "But, we shall never find out the best way"—says the British medical educator—"so long as all pilgrims are forced to take the same path."

There is hope for the future of American medical education in our own ingenuity. After World War II the problems became very acute in this country, too. Discussions led to a large-scale experimentation in medical education in our country which is generously supported by the Commonwealth Fund. The universities of Colorado, Cornell, Western Reserve, and Pennsylvania have embarked on innovations in training the future physician. Consolation comes finally from the American spirit of pioneering which is eloquently expressed by the steel-lettered motto arching over the Memorial Gate of Pennsylvania University: "Inveniemus viam aut faciemus" ("We shall find a way or we shall make one").

Around the World

(Ser. II, No. 5)

By
CLAUDIUS F. MAYER, M.D.

EUROPE has its troubles with water pollution, but it is more a serious national than international problem since, with a few exceptions, the rivers in Europe are flowing through one country for the whole of their length. Pollution of waters in a country depends on the density of population, the industrial development, the provision of piped water and sewers. Higher standard of living usually goes with higher pollution. It is only *in Iceland* where *there are no problems of pollution.* This country has only 149,000 inhabitants on an area of 103,000 Km². Three quarters of the country is virtually uninhabitable. Sixty-two percent of the people live in towns each of which is on the coast. One third of the Icelanders live in Reykjavik.

The average precipitation in Iceland is 1100 mm (about 43 inches) in a year, most of which comes in the winter. There are innumerable small rivers, and abundant sources of unpolluted water which are chemically pure, very soft and uncontaminated by bacteria. The town houses are either connected to a public sewer system or they have private septic tanks or drains to the sea. Thus, there is no need for a sewage-treatment plant in Iceland.

Besides the provision of clear water, any program for the improvement of man's environment includes *food hygiene* as one of its essential parts. Environmental sanitation greatly differs *according to cultural patterns* and civilizations as they vary in different parts of the world. Prevention of food contamination by supervision and control of markets, of food handlers and manufacturers, also by means of education of the public is a world-wide problem. While much can be accomplished in this field by the stimulus and guidance provided by international organizations, and by the recognition of certain basic principles and procedures, specific food articles as well as local dietary customs will require local modifications of the procedures and methods of control, according to the opinion of a committee of World Health Organization. Moreover, in the underdeveloped areas of the world, it is difficult to reduce food-borne disease in the face of a diseased population, with many sources of infection left open and untreated.

It needs not much effort to keep in mind that *serological tests* also show a peculiar behavior *according to the geographical areas* where they are used. A blood sample, mailed from another sector of the world, when tested with the same antigen, may give different results in Washington than in Montevideo or in København. In view of this phenomenon, the choice of a "battery" of tests for the serodiagnosis of syphilis is best made on a regional basis according to results obtained with individuals of the region. According to observations on a world-wide basis, the position of false positive reactions varies considerably in accordance with the most prevalent diseases of the region.

The Third International *Congress of Neohippocratic Medicine,* held a few months ago at the Italian spa Montecatini, gathered a large audience from 18 countries. Neohippocratism (a term suggested by the deceased Arturo Castiglioni in 1925) represents a new medical practice movement provoked by the growing overmechanization of medicine of our modern days. Neohippocratism offers a way back to the basic ideas of Hippocrates which have put the sick individual into a prominent position in medicine, with due regard to his constitution and his mind and spirit, and have encouraged the traditional naturalistic therapy. In its modern

development, neohippocratism now operates with many new advancements, biotypology, psychosomatic medicine, personal biology, etc. The great therapeutic energy of Nature, the *"Vis medicatrix naturae,"* includes also such valuable forces as the hydromineral energies and the electromagnetic radiations of Earth, the radiant chemical energies of the sea, air and land. "Pure hands and immaculate conscience" are the trademarks of the neohippocratic doctor, the Congress emphasized, and he has a truly sacerdotal mission at the side of the sick, being the altruistic priest of science and medical art.

The Eighth International *Congress of the History of Medicine* was held last September, partly in Firenze, partly in Milano. Its fourth and largest section was devoted to the history of biology and medicine. Among the participating nations there was also the United States, and a member of the Association of Military Surgeons also attended the meetings. His (Dr. Pritikins) two lectures were the only addresses related to the history of military medicine.

Two international congresses, one in København and the other in Paris, were held in Europe (in 1954) on the *pathology of concentration and deportation camps.* The Summary of discussions was recently released by French medical authorities. The meetings, held so late after the end of World War II, made it clear that at least 30%-50% of the former internees were still suffering from the sequelae of their ordeal. It is the demand of humanity that these people *should be considered as war victims,* and compensated accordingly. They are true combatants since no type of military service had ever produced as many casualties as found in the group of people deported from their native lands. Thus, out of the 220,000 French citizens who had been corralled by the Nazis and driven across the Rhine to Germany, only 37,000 (17%) returned, all of them seriously wrecked. Inhuman conditions in work, nutrition, accommodations and clothing made the inhabitants of concentration camps the death prey of all types of infections. Their natural resistance was very low, and the death rates from all diseases increased among them. Thus, the yearly tuberculosis mortality in Buchenwald was 32%. No wonder that deportation and displacement finally wiped out nine tenths of these unfortunates. Those who are still alive could rarely recover from the *social collapse* and the *premature senescence* which is their inevitable share (the Drs. Richet and Mans, in Paris, have also written a book on the Pathology of Deportation).

It is interesting to learn that the *I. G. Farbenindustrie,* the big German chemical trust, met in September and obtained approval of the stockholders to pay about seven million dollars to *former prisoners at the Auschwitz concentration camp* who had been used by I. G. as slave laborers. This chemical firm had a plant at Buna-Monowitz where the prisoners worked for money which the I. G. paid to the SS troops (the infamous prison guards). The official information puts the number of such workers at 40,000 a few of whom survived the Auschwitz crematories. A few of the survivors sued the company which, in fear of further reprisals, decided to compensate some 4,000 persons either survivors or heirs of survivors of the Auschwitz horrors.

As another memory of the last war, a *War Memorial* was erected *at Monte Cassino.* It was unveiled by the field marshal of the British Army in the Cassino Cemetery to commemorate the more than 4,000 fighters of the Commonwealth Armies who fell in the 1944 campaign.

Italy, the land of Ramazzini, has been always in the front line of occupational medicine. The present *Italian center of medical research for the workmen* is at Milano where Dr. Luigi Devoto founded his *Clinica del Lavoro* (in 1910) which in 1927 merged into the local university. To every visitor the center looks a magnificently equipped model institution for the treatment of, and research in, industrial diseases. It has a hospital for 140 patients, and a number of special laboratories for research in the physiology and

biology of work, in mine sanitation, industrial toxicology, hematology and histology. The radiological service of the clinic also provides pre-employment chest examinations for the industrial workers in and near Milano.

A new wing was added to the *Dutch Institute for Preventive Medicine* in Leiden, another center which was established in 1929 to become a national institution where the preventive medical work in the Netherlands could find scientific basis and support. The institute has departments for bacteriology and experimental pathology, occupational medicine, mental health, health education and welfare, and statistics. It provides occasional lectures; since 1951-52, also, regular postgraduate instruction in preventive medicine for 9 months.

Another advancement in the field of preventive medicine comes from France. At the French Academy of Medicine the attention of medical people has been repeatedly called to the *bad effects of overwork* which is as much a killer in France as cancer or tuberculosis. Under the stimulus of Dr. Bianchelli, a number of French sociologist physicians gathered, therefore, to promote the foundation of an institute for the study of the dangers of overwork. It will be certainly a unique institution in the world!

The Republic of *San Marino* was selected to be the site of *an Atomic Congress* at the end of March 1957. The meeting will discuss the prevention and treatment of "atomic disease of industrial origin." Among the problems there are listed preventive and curative methods, the safe handling of radioactive material, contamination of the environment and food, and the biological and genetic consequences of ionizing radiations. The ultimate purpose of the meeting is the drafting of international laws for the workers' protection.

Various armies have published mortality statistics in which the *cause of sudden deaths in young soldiers* was acute *myocarditis* that developed either after an infection or after a vaccination. Inflammation of the heart muscle is quite common in infectious diseases but it is mostly of a benign course, and only an electrocardiograph can surely detect it. According to Scandinavian data, myocarditis is most frequent in scarlet fever, poliomyelitis, and diphtheria. Rheumatic heart disease is a pancarditis and it makes one completely unsuitable for further military service (in the opinion of a cardiologist of Bergen University).

It is sometimes very difficult to discover the *source of puerperal infections* in maternity units. Two outbreaks of streptococcal puerperal sepsis occurred in the West Wales area in Carmarthen and Llanelly, and in both cases the infants in the nursery were found to be carrying Streptococcus pyogenes on the umbilicus. Bacteriological examination of the umbilical swab is therefore recommended for the solution of epidemiological problems of puerperal sepsis.

The U. S. public health authorities recognized the *importance of medicine men* in the social life of our Indians. Hence, steps were taken to educate them in the elements of epidemiology and preventive medicine, with the purpose of reducing the high rate of tuberculosis and fatal infantile diarrhea. The first Indians trained in the health ways of the White Man will work at the Navajo Reservation in Arizona. Does this mean the end of the medicine man?

Jamaica produced a true hermaphrodite. This authentic case is now the 58th in the world. The young colored person, about 20 years of age, had all the external and internal genital parts of both sexes. One of the gonads was an ovary, the other was a combined ovary and testis. The young person had pendulous breasts, also a hypospadic penis. At the request of the person, all feminine parts (uterus, ovaries, breasts, vagina) were cut away and/or obliterated. He is now employed as a happy man-servant in Jamaica.

A nutritional survey of *Chinese nationalist troops* recently revealed that *riboflavin deficiency* was the most frequent nutritional disorder at Formosa. Mountain troops which

were farther away from the supply of foodstuffs were mostly affected. The surveyors suggested that the staple rice diet should be enriched with added vitamins and yam. This was done, and a subsequent field trial showed that the occurrence of follicular keratosis on the back and the glutei, a symptom of vitamin A deficiency, was greatly decreased. The so-called orogenital syndrome (angular stomatitis, cheilosis, magenta tongue, nasolabial seborrhea) also disappeared in the soldier after eating the enriched diet for four months.

Recent *tuberculin testing of Gurkha recruits from Nepal* in the Indian Army shows that the Gurkhas are not "primitive people" as far as tuberculosis is concerned. Primitive tuberculosis as applied to a race means that the affected people had little contact with the disease over the centuries, and hence little opportunity to build up native resistance by repeated contact with the disease. During the past five years various tests showed that more than 50% of the Gurkha recruits react positively to Mantoux tests. The Hill people of Nepal arose from two root sources. The first of these is predominantly Indian, migrating particularly into the West; the other is more Mongolian in appearance and physique, migrating mainly into the East. Both people have a long acquaintance with tuberculosis, and it may be assumed that *tubercle in Nepal* has at least as long a history as it has in other Asian countries.

Analysis of *liver cirrhosis in Rajasthan* showed a preponderance (52.5%) of the post-necrotic variety of the disease. Further investigation detected that the cause of liver necrosis is deficiency of animal protein in the people's diet. In Udaipur, for instance, the staple diet is corn, and the farmers rarely take green vegetables. Biochemical analysis showed that while the whole corn is fairly rich in protein (11.1%), corn flour has very little of it (0.6%). Moreover, the cystine content of corn protein is less than that of wheat protein. The deficiency of cystine as the cause of liver necrosis has been long established.

Another type of liver disease caused by deficient food is seen in Samoa. Many young children of *Samoa and Niue have enlarged livers* because their diet lacks animal protein. It is known that youngsters very largely depend on vegetable protein derived from taro, cocoanut, bananas, yam or breadfruit. Formerly, many infants received extra food which was chewed by the mother and put into the baby's mouth on her finger, but this custom ceased as a result of health education by the White Man. Protein deficiency also causes liver damage in adult Samoans as shown by the frequent (2.6%) occurrence of hepatic cirrhosis in older persons.

In Leningrad, on 20 January of this year (1957) a solemn commemorative conference will be held to celebrate the one hundred-year *birthday of V. M. Behterev*, Russian neurologist. The presidium of the Russian Academy of Medicine commissioned various other medical groups to participate in the festivities. The collected works of Behterev will be also republished by Medgiz for this occasion.

Recent political news from the Mid-Danubian Valley filled us with hope that the iron curtain would be permanently rolled up and there would be again a free interchange of scientific thought between Hungary and the West. Every medical man has heard of the Nobel-prize winning Szentgyörgi (pronounced "Sen-dyur-dyee") and his research in vitamins while he was associated with the University of Szeged. Another Hungarian University, the one at Budapest, announced recently the *discoveries of Baló and Banga*, a married couple of Hungarian pathologists, who for many years have been studying *the pathogenesis of arteriosclerosis*. They were able to produce atherosclerosis experimentally by provoking acidosis first which then caused changes in the elastic sheath of vessels. They assumed that the circulating blood contains *elastase*, an enzyme produced by the pancreas, which was able to depolymerize the fibrous structure of elastin in the wall of the bloodvessels, but under normal conditions its destructive action was prevented by another pancreatic enzyme of antagonistic, in-

hibitory effect. In the blood of the arteriosclerotic person there is no such inhibitor present. The theory is a very plausible explanation of the genesis of arteriosclerosis, and the school of Hungarian scholars around Baló has published a number of articles on the interesting subject.

At the last annual meeting of the British Medical Association, one of the lecturers (R. Asher) pointed out that most people had a hobby of some kind, and some of them chose illness. The devotees of *illness as a hobby* belong in three main groups. There is the *genuine student* who takes great interest in his illness and picks up an extensive amateur knowledge of x-rays, blood tests, etc. This is harmless in itself, especially if the illness goes well, but it bears the seed of hypochondria. The behavior of the *chronic hypochondriac*, most often a woman, is different according to her economic status. The rich one represents the "grand tour" type, going from one consultant to the other in Europe, while her rich (but inattentive) husband supplies the money as a substitute for affection. Her poor sister, in lieu of globe-trotting, becomes the perpetual outpatient, drifting from one department to another. The third type of hobbyist is the *chronic convalescent*, a man with a long-standing organic illness which he does not want to abandon since he thrives upon the sympathetic inquiries of his friends and on the security of his medical regime. While these types of illness hobbies are mistakes, the hobby of studying OTHER people's illnesses brings the greatest satisfaction. . . . *Multa paucis!*

BOOK REVIEW

UNDERSTANDING HUMAN BEHAVIOR. By James L. McCartney, M.D., F.A.C.P., 258 pages. Vantage Press, Inc., New York. 1956. Price $3.50.

This book was written by a doctor of the fourth generation of doctors, and a psychiatrist with thirty years experience. Dr. McCartney avoids technical language so that psychiatry can be understood by everybody.

In the very first paragraph the reader is encouraged by the author with the statement, "The process of living should afford a reasonable degree of contentment and efficiency." Probably one of the reasons this contentment does not always exist is because "we do not breed people as intelligently as we breed animals." Nor will we ever. But "we have been doing a great deal more about environment, which is the major molder of personality and human nature."

The first chapter of the book deals with heredity, environment, and the body as a whole. This approach gives an excellent working background before any attempt is made to analyze the psyche. Following chapters attempt to explain the origin of guilt, the origin of frustration, dreams, diagnosis, sex and sex abnormalities. The book finishes with chapters on every form of treatment used in psychiatric practice.

The final chapter is on "A Philosophy for Living." Here are many good pieces of advice. "Adults dealing with children must help make them feel that they are important." "The adult world must find ways in which all children can experience success, whether great or small."

There is a glossary-index which certainly adds to the convenience in using the book.

This book can certainly be recommended to any one who has a desire to know the whys and wherefores of "human behavior."

COL. ROBERT E. BITNER, USA, RET.

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ASSOCIATION NOTES

Timely items of general interest are accepted for these columns. Deadline is 3rd of month preceding month of issue.

Department of Defense

Ass't Secretary (Health & Medical)—HON. FRANK B. BERRY, M.D.

Deputy Ass't Sec'y—HON. EDW. H. CUSHING, M.D.

MEDICARE ACT

Public Law 569, 84th Congress, known as the *Dependents' Medical Care Act,* has been implemented and became effective December 7, 1956.

The law is applicable to all the uniformed services—Army, Navy, Air Forces, Marine Corps, Coast Guard, Commissioned Corps of the Coast and Geodetic Survey, and the Commissioned Corps of the Public Health Service.

Hospital Care. Medical care for dependents of both active duty and retired personnel, as well as dependents of persons who died while in active or retired status, will continue to be provided in hospitals operated by the uniformed services on a space available basis.

Costs to a service family for hospitalization, in a civilian hospital, are limited to a payment of $25; the costs for hospitalization in a Government hospital remain as they were. Limitations on medical care at Government facilities are: Diagnosis, treatment of acute medical conditions, surgical treatment, treatment of contagious diseases, immunization, obstetrical and infant care, acute emergencies.

Dental care. This will not be provided except for emergencies or for conditions related to a medical or surgical condition.

Ambulance service, domiciliary care, or *home calls* will not be provided by government hospitals.

Civilian hospital care. The program provides for: complete obstetrical and maternity care; treatment for acute emergencies, treatment of acute medical and surgical conditions during hospitalization; diagnostic tests incident to hospitalization.

Outpatient Service. Not provided by civilian medical facilities at Government expense except for maternity patients or bodily injuries.

Identification. Individuals will be required to identify themselves. A standard identification form is planned for July 1, 1957.

Prescriptions. Not covered.

SELECTIVE SERVICE

Plans have been made to call up 450 physicians in February. 250 of these physicians will go to the Army and 200 to the Air Force. The special act under which doctors are called to duty with the Armed Forces will expire July 1, 1957.

EXTRA PAY

Doctors and dentists are not eligible for the $100 extra monthly pay until they have completed a year's internship according to a decision by the Comptroller General.

SOCIAL SECURITY

Deductions from the pay of Armed Forces personnel will be started this month under the new Survivors' Benefits Law. The deductions will be at the rate of 2¼% of the pay with the maximum pay to be figured at $4200. The maximum deduction for the year would be $94.50. Social security numbers will be given everyone who has any

deduction made. These numbers must be preserved for any future claims.

MEDICAL PROCUREMENT AGENCY

The Armed Services Medical Procurement Agency, 84 Sands St., Brooklyn 1, New York, has been redesignated as *Military Medical Supply Agency,* by a recent order of the Secretary of the Navy.

The Executive Director, who has replaced the Chief of the Armed Services Medical Procurement Agency, is Rear Admiral William L. Knickerbocker, Supply Corps, U. S. Navy.

STUDY NUTRITIONAL PROBLEMS

Dr. Frank B. Berry, Assistant Secretary of Defense, accompanied by others recently completed a trip to countries in Europe and the Middle East where they studied nutritional problems and dietary deficiencies.

Accompanying Dr. Berry were: Rear Adm. Bartholomew W. Hogan, Surgeon General of the Navy; Maj. Gen. James O. Gillespie, Office of the Surgeon General, Army; Maj. Gen. Harry Armstrong, Surgeon, Air Force, Europe; Dr. Arnold E. Schaefer, Deputy Director, Interdepartment Committee on Nutrition for National Defense; Dr. Joseph S. Butts, Oregon State College; Dr. Olaf Mickelsen, National Institute of Health; Dr. Richard A. Kern, Temple University Hospital; Dr. Edward D. Churchill, Harvard University.

Army

Surgeon General—MAJ. GEN. SILAS B. HAYS

Deputy Surg. Gen.—MAJ. GEN. JAMES P. COONEY

RESIDENCY IN PREVENTIVE MEDICINE

July 1, 1957 will initiate the residency training program in preventive medicine in the Army.

Regular Army Medical Corps officers or qualified civilian physicians who accept commissions in the Regular Army are eligible to participate in this three-year program which will provide both civilian and military training.

Training is to be followed by three years of practice in the specialty to establish eligibility for Board Examination.

Applications for the training in the field of preventive medicine should be made to the Surgeon General, Department of the Army, Washington 25, D.C., Attn: Chief, Personnel Division. Military personnel should apply through the appropriate channels.

OIL PAINTING—GEN. SNYDER

An oil painting of the recent Chief of the Dental Corps of the Army, Maj. General Oscar Snyder, was presented to Maj. General Leonard Heaton, Commanding Officer of the Walter Reed Army Medical Center. The presentation was made by Brig. General Arthur L. Irons, Director of Dental Activities of the Center. The picture has been hung in the Dental Library at the Walter Reed Army Institute of Research.

ARMY DOCTOR TRAINED AT NAVY DIVING SCHOOL

Major Gerald Champlin, MC, completed a ten-week course at the Navy Deep Diving School in Washington, D.C., recently.

Major Champlin, the first Army doctor to go through the Navy course, was sent by the Army Surgeon General as the first move in a program to provide Army divers with doctors trained to cope with the special medical problems of deep-sea diving.

Little known fact is that the Army has about 200 qualified divers engaged in construction, repair, demolition and underwater work throughout the world.

Major Champlin, post surgeon at Ft. Eustis, Va., has now experienced first-hand the physiological and psychological reactions to deep-sea diving and has learned techniques of treating "the bends," and handling other problems related to compression, decompression and recompression.

The Army operates its own diving school at Ft. Eustis. Major Champlin has returned to the post to take over medical surveillance

of diving operations there. He will also serve as consultant to the Army Surgeon General in matters of diving medicine, and is expected to develop recommendations for further medical training in this specialized field.

PROFESSOR OF HOSPITAL ADMINISTRATION

Col. William A. Hamrick, Director of the Department of Administration at the Army Medical Service School, has been named professor of hospital administration in the Graduate School of Baylor University.

CHINESE STUDENTS IN TRAINING

The Army Medical Service School, Fort Sam Houston, Texas, is training 25 top-ranking non-English speaking Chinese students. Five Chinese medical and dental officers arrived several months ago to serve as translators for the group of 25 students.

PHYSICAL THERAPIST PROMOTED

Lt. Colonel Olena M. Cole, Chief of the Physical Therapy section at Brooke Army Hospital, Fort Sam Houston, Texas, was recently promoted to that grade. She is the first physical therapist to be promoted to lieutenant colonel while working in an Army hospital. Other physical therapists in that grade have been in the Office of the Surgeon General serving as Chief of the Physical Therapy Section in that office.

Colonel Cole was a teacher at Drew Seminary in Carmel, New York, before entering the Army in 1943. She is a graduate of MacMurry College, Jacksonville, Ill., where she received her B.S. degree in 1931. In 1950 she received her M.A. degree from the University of Wisconsin.

Navy

Surgeon General—REAR ADM. BARTHOLOMEW W. HOGAN

Deputy Surgeon General—REAR ADMIRAL BRUCE E. BRADLEY

SELECTED FOR REAR ADMIRAL

Captain William H. Christensen, of Bremerton, Washington, was recently selected for appointment to the grade of Rear Admiral, Dental Corps, U. S. Naval Reserve.

He was selected to fill the vacancy created by the retirement of Rear Admiral C. Raymond Wells, Past President of the American Dental Association.

Two rear admirals are authorized in the Reserve Dental Corps. The other officer is Rear Admiral George Paffenbarger, Head of American Dental Association Research Section at the National Bureau of Standards.

Captain Christensen is a native of the state of Washington. He has seen service in both World Wars.

ASSIGNED BUMED

LCdr. Calvin F. Johnson, MSC, recently reported to the Bureau of Medicine and Surgery where he was assigned as Executive Assistant to Captain Williard C. Calkins, Chief of the Medical Service Corps and Director of the Medical Service Corps Division.

LCdr. Robert H. Getts, MSC, has been assigned as Administrative Assistant to Captain Guy E. Stahr, MC, Director of Dependents Medical Care Division.

NAVY SENIOR DENTAL STUDENT PROGRAM

Dental students in present junior classes are eligible to apply for the Navy Senior Dental Student Program for Fiscal Year 1958, which commences in the fall of 1957. Successful applicants are appointed Ensign 1995 (Dental), USNR, and receive the active duty pay of that grade while in their senior year in dental school. Upon graduation, they will be appointed in the grade of Lieutenant (junior grade) Dental Corps, Regular Navy. Ensigns must apply for this superseding appointment as Lieutenant (junior grade) six months before graduation. They are required to serve on active duty for three years after graduation. Participants are deferred from military service so long as they remain in good standing in dental school. During their senior year in

dental school, they will receive the pay and allowances of an Ensign, which is $355.00 per month in the case of married officers, and $338.00 per month in the case of an officer without dependents. Applicants must be of such age that upon expected date of graduation they will have reached their 21st birthday but not their 33rd birthday. Applications must reach BuPers not later than February 1, 1957.

Air Force

Surgeon General—MAJ. GEN. DAN C. OGLE
Deputy Surg. Gen.—MAJ. GEN. W. H. POWELL, JR.

DIPLOMATE

Major C. O. Dummett, DC, a periodontist and preventive dentistry officer, Elmendorf Air Force Base, has been certified as a Diplomate of the American Board of Oral Medicine without an examination because of "outstanding contribution to Oral Medicine and recognized position in this field." At the 97th meeting of the American Dental Association recently he presented a paper, "The Relation of Periodontal Disease to Public Health" which will appear in the February 1957 issue of the *Journal of the American Dental Association.*

Public Health Service

Surgeon General—LEROY E. BURNEY, M.D.
Deputy Surg. Gen.—W. PALMER DEARING, M.D.

ILLNESS AND DISABILITY SURVEY DIRECTOR

Dr. Forrest E. Linder has been named Director of a new Public Health Service program to survey the nature and extent of illness and disability in the population each year.

The year-by-year survey, authorized by the past Congress, also will include data on medical services received by the ill and disabled. The last previous Federal survey of this type was in 1936.

Veterans Administration

Chief Medical Director—WILLIAM S. MIDDLETON, M.D.
Deputy Chief Med. Dir.—R. A. WOLFORD, M.D.

INCENTIVE AWARD

The Veterans Administration Hospital employees at Fort Lyon, Colorado, recently were recipients of $10 shares as part of the largest incentive award in the history of the Veterans Administration. $4,360 was distributed along with a Certificate of Commendation.

Dr. Middleton, Chief Medical Director for the Veterans Administration said, "The accomplishments of the hospital, during 1955, were the direct result of an outstanding group effort on the part of every employe."

The Fort Lyon hospital is a 781-bed hospital specializing in the care of mentally ill veterans. It is located on the site of an old frontier post, later a military fort.

CHRONICALLY ILL

Rehabilitation of the chronically ill and aged veterans, those hospitalized 10 to 20 years, gained emphasis about a year ago in the Veterans Administration. Of the initial group of 4,263 hospital patients 1,159 have been discharged.

Dr. Cohen, Hospital and Clinics Director said, "A concerted effort is made to rehabilitate these chronically ill veterans sufficiently for them to be returned to their homes, to a foster home, or to other appropriate community facilities" and ". . . to provide them with recreational, spiritual, and social activities so as to prevent mental regression and social isolation."

HIGH BLOOD PRESSURE

High blood pressure will be investigated through large-scale drug research by the Veterans Administration.

Dr. Edward D. Freis of the Veterans Administration Mount Alto Hospital, in Washington, D.C., is coordinator of the program.

The study is aimed at determining how well newer drugs control high blood pressure and whether they can prevent hardening of the arteries, heart attacks, strokes, and other complications of the disease.

Six VA hospitals will carry out the research: Mount Alto, Iowa City, Iowa; San Juan, Puerto Rico; Chicago West Side, and Richmond, Va.; with a sixth to be chosen.

Dr. Freis said the drugs under test are reserpine, which is a tranquilizer; hydralazine, a powerful dilator of blood vessels, and pentolinium tartrate, chlorisondamine chloride, and mecamylamine hydrochloride. The latter three are synthetic compounds that block transmission of nerve impulses to the blood vessels.

Results of the study are expected to be reported to the medical profession and the public at the end of two years.

TUBERCULOSIS STUDY

Research aimed at learning how tuberculosis germs get into the lungs of uninfected persons and what may be done to prevent it is underway at the Veterans Administration hospital in Baltimore, Md.

The research is being conducted by Dr. Richard L. Riley, associate professor of environmental medicine at Johns Hopkins University School of Hygiene and Public Health, as principal investigator, in association with William Firth Wells, a well-known expert on airborne infection and a VA consultant; Mrs. Cretyl C. Mills, bacteriologist, and Dr. Walenty Nyka, pathologist.

Dr. Ross L. McLean, director of professional services at the Baltimore VA hospital, said that although staff members and volunteer workers in VA tuberculosis hospitals are protected effectively from acquiring the disease, findings of the research project may be used to develop methods of protection more simple than the present techniques.

Dr. McLean said all evidence points to the air breathed as the most important pathway for the TB germ to travel, either inside or outside a hospital.

Studies with rabbits and using special laboratory types of tuberculosis germs have shown that only the tiniest of particles can carry the TB germ into the lung of an uninfected animal, Dr. McLean said. This was demonstrated by artificial contamination of the air breathed by the animals with tuberculosis germs borne upon particles of various sizes, he said.

Because the infectious particles are so tiny that they float around in the air like smoke, ultra-violet light treatment of contaminated air has been found effective in protecting experimental animals from this laboratory type of tuberculosis, he said.

"It is of the utmost importance to determine whether human beings with active tuberculosis of the lungs actually contaminate the air they breathe with the tiny particles that are so infectious for laboratory animals, because this may well be the most important way that infectious cases infect other persons," Dr. McLean explained.

To determine just how contaminated the air breathed by persons with active tuberculosis may be, approximately 200 guinea pigs will stay for many months in an exposure chamber where they will breathe air drawn from the rooms of patients, Dr. McLean said.

The number of animals which show evidence of tuberculosis and the length of the time the disease takes to develop will measure exactly the degree of contamination of air by patients, he said.

"If these guinea pigs contract tuberculosis in sufficient numbers, it will prove that human beings with tuberculosis of the lung produce the type of minute infective particles which already have been shown to be so highly infectious for the experimental animal," Dr. McLean said.

"Once this fact has been established, new, more simple methods for protecting those who care for tuberculosis patients may possibly be introduced to supplement or replace the presently used highly effective methods. Also, these results may lead to air hygiene research in other fields with broad implications regarding the protection of persons

who may be exposed to infection in other ways outside the hospital."

Miscellaneous

TUBERCULOSIS

Even in terms of death rates from tuberculosis alone, the future task is large and prolonged. It will require years of effort to achieve a death rate of only 1.5 per 100,000 population, which is about the current death rate from acute rheumatic fever, appendicitis, arthritis, poliomyelitis, and several other diseases which are still considered to be of public health import. The maternal mortality rate is about at that level. Measles, whooping cough, and infectious hepatitis combined, do not exceed it. When the death rate from tuberculosis drops to the level of these important diseases, then tuberculosis control programs and needs should be re-examined. Robert J. Anderson, M.D., *Pub. Health Rep., Feb., 1956.*

Much has been written about the eradication of tuberculosis, and the fall in mortality and morbidity figures has given hope that it may be realized in the future. But to accomplish this desirable state of affairs, it is essential to find and control the chronic infectious cases. We cannot hope to get rid of tuberculosis until we do this for they are like the red-hot embers that remain after the main fires of a bonfire have died down and can set alight any nearby combustible material. F. R. G. Heaf, M.D., *J. Royal Inst. Pub. Health and Hygiene, Nov., 1955.*

Variations and loss of sensitivity to tuberculin have been observed in the course of some diseases. These changes are usually of a transitory nature, and tuberculin hypersensitivity returns with the improvement or recovery of the patient. The tuberculin reaction which may be slight or absent in those suffering from far advanced tuberculosis or tuberculous meningitis may return in those whose condition improves under antimicrobial treatment. Joseph D. Aronson, Helen C. Taylor, Daniel L. Kirk, *Am. Rev. Tuberc., July, 1956.*

The knowledge obtained from tuberculin tests is of value to the community and to the health department in comparing the local rate of infection with that in other areas of the country. Uniform testing of school children is valuable to the health department in focalizing the problem in certain sections of the community, in certain racial groups, and in special geographic regions. While it is desirable to test persons of all ages, this presents certain difficulties and the uniform testing of school children with a uniform dosage of tuberculin appears to provide a satisfactory means of comparing tuberculin sensitivity in various areas. Michael L. Furcolow, M.D., *Am. J. Pub. Health, September, 1956.*

The most unfortunate feature of tuberculosis in elderly persons is that it usually has no distinctive symptom. The cough, sputum, dyspnoea, slight dyspepsia and a general feeling of lassitude are all put down to increasing years. It is only when sudden pain or haemoptysis occurs that the patient becomes alarmed and seeks advice. It is then that advanced, old-standing disease is found, and the damage done from the wide distribution of tubercle bacilli from this focus of infection over a number of years can be visualized. F. R. G. Heaf, M.D., *J. Royal Inst. Pub. Health and Hygiene, Nov., 1955.*

The least tangible but probably the most potent factor in the existing favorable trend in mortality from tuberculosis is the general improvement in the standard of living. Greater earning power has made possible more adequate nutrition and better housing. Reduction in the average size of families has reduced overcrowding, which in turn has lessened opportunities for the spread of infection. Where economic levels have continued high, tuberculosis rates have fallen; when war or famine have intervened they promptly rise. It is more than coincidence that the levels of tuberculosis throughout the world are closely related to the economic level of the populations concerned. Alton S. Pope, M.D. and John E. Gordon, M.D., *Am. J. Med. Sciences, Sept., 1955.*

GORGAS MEMORIAL INSTITUTE

At the annual meeting of the Gorgas Memorial Institute of Tropical and Preventive Medicine, held in Washington last November, Colonel Joseph F. Siler, U. S. Army, Retired, was re-elected president, a post which he has held since 1941.

Colonel Siler graduated from the University of Virginia in 1898 and after an internship entered the Army as a Contract Surgeon for a period of three years when he was commissioned in the Regular Army Medical Corps. He was retired in June 1939, but called back to active duty during World War II.

Executive offices of the Gorgas Memorial Institute are at 1835 Eye St., N.W., Washington 6, D.C.

PERSONAL ITEM

Major Carl J. Schopfer, MC, NG, New Jersey, Surgeon of the 114th Surgical Hospital (Mobile Army) was re-elected Coroner of Essex County in the last November elections.

HOXSEY CANCER TREATMENT GETS BLOW

Again a Federal court has determined that the Hoxsey medicines for internal cancer are worthless. Recently, after a six-week trial in Federal court at Pittsburgh, the jury returned a verdict that these medicines, in pill form, were illegally offered as an effective treatment for cancer.

A half million Hoxsey pills were recently seized after the opening of a second Hoxsey Clinic at Portage, Pa. They will be destroyed. The Food and Drug Administration intends to use every legal means to protect consumers from being victimized by this worthless treatment. It is interesting to note that Hoxsey has carried on this worthless treatment for a period of thirty years.

REPRINTS WANTED

Literature on arthropods as agents of human disease is requested to assist in a special study being made in Veracruz, Mexico. Anyone having reprints or other literature on the subject is requested to send it to: Investigaciones Cientificas del Tropicos, Apartado Postal 380, Veracruz, Mexico; Attn: Dr. Larry Tabut, Director.

POPULATION

Today there are 67% more children under five years of age than there were in 1940, and the number of births in 1955 reached 4,200,000 against 2,538,000 in 1940.—*Industrial Press Service.*

UNUSED MILITARY CLOTHING

Obsolete or unwanted military clothing can be disposed of by sending to Maj. Gen. H. L. Boatner, Chief of Joint Military Aid Group, APO 206, New York, N.Y., for use by Greek Army officers.

MEDICAL STUDENT PRIZE WINNERS

Schering Award winners for 1956 were recently announced by Dr. C. J. Szmal, Chairman of the Award Committee. Successful contestants were Nathanile Silon, Albany Medical College, Albany, N.Y.; Marvin I. Gottlieb, University of Tennessee School of Medicine, Memphis; and Richard K. B. Ho, University of Maryland Medical School, Baltimore. Each received an honorarium of $500 and a special certificate.

Second prize winners were Marvin A. Sackner, Morton J. Robinson, and Richard N. Smith of Jefferson College, Philadelphia; Francis A. Goswitz and Helen A. Vodopick, who graduated from Marquette University Medical School this year and are currently interning at the State University of Iowa Hospitals, Iowa City. Second prizes were $250 each.

The awards were established in 1940 and annually offer prizes for the best papers submitted on three selected medical topics of current interest.

STIPEND INCREASED

Special Fellowships in Industrial Medicine (under Atomic Energy Commission) will carry an increased stipend for the academic year. The amount has been increased from $3,600 to $5,000. Persons interested in these fellowships should contact A.E.C. Fellow-

ships in Industrial Medicine, Atomic Energy Project, University of Rochester School of Medicine and Dentistry, Rochester 20, N.Y., Attn: Dr. Henry A. Blair.

MEDICAL HORIZONS

The American Medical Association cited the national television series, *Medical Horizons,* for "giving the American public a new insight into the work and achievement of the American doctor."

Medical Horizons is sponsored by Ciba Pharmaceutical Products, Inc., and appears weekly on television.

NEW FILM

A Place to Live is a 16 mm., black and white, sound film (running time—24 min.) about the aged. The film was produced to provide better understanding of this subject for the medical profession, gerontological groups and the public. It is procurable on a loan basis from Wm. S. Merrell Co., Cincinnati 15, Ohio.

SMOG ELIMINATION

"Smog as we know it" can be eliminated if two specific gains could be announced by October 1, 1957: (1) that incineration of refuse is "really outlawed" by that date; and (2) that the auto exhaust problem had been solved. These were the conditions laid down by Dr. W. L. Faith, vice president of the Air Pollution Foundation, Los Angeles, Calif.

DR. PAUL WHITE TO LECTURE

The Relation of Ways of Life to Heart Disease will be the subject of the Thirty-second Hermann M. Biggs Memorial Lecture to be delivered under the auspices of the Committee on Public Health of The New York Academy of Medicine, on Thursday, February 7, 1957, at 8:30 P.M. in the Academy Building, New York City.

SYMPOSIUM—HEART SOUND PRODUCTION AND RECORDING

The University of Buffalo, New York, will be the site of a symposium on the "Present Status of Heart Sound Production and Recording" February 14, 1957. The program will start in the morning and end with a Round Table Discussion in the evening.

NATIONAL HEALTH FORUM

"Better Mental Health—Challenge to All Health Services" is the theme of the 1957 National Health Forum which will be held at Hotel Hilton Plaza, Cincinnati, Ohio, March 20-22. The Forum is one in an annual series conducted by the National Health Council in behalf of its national organization members, to consider some health problem of nation-wide concern requiring concerted thinking and action.

The National Health Council has its headquarters at 1790 Broadway, New York 19, New York.

OPHTHALMOLOGY ASSOCIATION MEETING

The Pan American Association of Ophthalmology and the National Society for the Prevention of Blindness will meet jointly at the Hotel Statler, New York City, April 7-10. All ophthalmologists in good standing are invited to attend. For further information contact Dr. Frank H. Constantine, 30 W. 59th St., New York 19, N.Y.

AUDIOLOGY CONFERENCE

An International Conference on Audiology will be held at the Chase Hotel in St. Louis, Mo., May 13-16 as part of tours that are being planned in connection with the Sixth International Congress of Otolaryngology to be held in Washington, D.C., in May, 1957.

Further information may be obtained from S. R. Silverman, Chairman, 818 South Kingshighway, St. Louis 10, Mo.

INTERNATIONAL CONGRESS ON CIRCULATION

To commemorate the Tercentenary of the death of William Harvey who discovered the circulation of the blood there will be an International Congress in the Royal College of Surgeons, London, from June 3-7, 1957. Further information may be obtained by communicating with: The Congress Secretary, Harvey Tercentenary Congress 1957,

11 Chandos St., Cavendish Square, London, W.1, England.

PAN AMERICAN MEDICAL ASSOCIATION

The Tenth Inter-American Congress of the Pan American Medical Association will be held in Mexico City, November 18-22, 1957. Executive offices of the association are at 745 Fifth Ave., New York 22, N.Y.

BOOKLET AVAILABLE

Conference Transactions, Fall 1956 is a booklet available from the Josiah Macy, Jr. Foundation, listing their publications. The booklet is free and may be obtained from that Foundation, the address of which is 16 West 46th St., New York 36, N.Y.

GOVERNMENT PUBLICATIONS

Surgery in WW II—Gen'l Surgery ...	$4.25
No. D 104.11:Su 7/4/v.2	
Peaceful Uses of Atomic Energy	2.45
2 Vols. Nos. Y4.At 7/2:At 7/13 v.1 and v.2	
Nat'l Library of Medicine Classif.	2.00
No. FS 2.202: C 56	
Org. of Fed. Gov't for Scien. Activ....	1.75
Educ. for Nat'l Survival	.65
No. FS 5.6: C 49	
Diabetes Program Guide	.45
No. FS 2.6: D 54	
Gen'l Hospitals and Nursing Homes ..	.40
No. FS 2.62:44	
Problems in Use of Tranquil Drugs ..	.25
No. FS 2.62:41	
Careers in Mental Health	.20
No. FS 2.22:M 52/15/956	

Any of above may be obtained from the Sup't. of Documents, Gov't. Printing Office, Wash. 25, D.C. by sending check, money order, or cash (no stamps).

Honor Roll

Since the publication of our last list, the following sponsored one or more applicants for membership in the Association:

Major Edward A. Barrett, MC, USAR
Col. Edmund G. Beacham, MC, Md. NG.
Col. Robert E. Bitner, USA, Ret.
Col. Marco R. Bonsignore, MC, USA
Rear Adm. W. Dana, (MC), USN
Major Silvio de Sao Paulo, MC, USAR
Col. D. Domke, MC, USA
Lt. Col. R. J. Farrell, DC, USA
Dr. Howard Glaesner
Maj. Gen. Alvin L. Gorby, MC, USA
Col. George B. Green, USAF (MC)
Cdr. Mary Grimes, (NC), USN
Brig. Gen. W. O. Kester, USAF (VC)
Col. James H. Kidder, MC, USA
Major Wm. H. Lockward, MC, CAP
Col. Hugo Mella, USA, Ret.
Brig. Gen. Harry D. Offutt, USA, Ret.
Lt. Col. Jack P. Pollock, DC, USA
Mr. Roger L. Rothrock
Capt. Wm. M. Silliphant, (MC), USN
Col. Jesse D. Stark, MC, USAR
Dr. Arthur Turner
Col. Audrey Underkoflen, USAF, (MSpC)
Brig. Gen. M. S. White, USAF
Capt. R. S. Widmeyer, USNR, Ret.
LCdr. Nell Williams, (NC) USN
Capt. Jose M. Vidal Yebra, MC

BOOK REVIEWS

PROGRESS IN HEMATOLOGY. Vol. I—1956. Edited by Leandro M. Tocantins, M.D. with 27 contributors. 336 pages. Grune & Stratton, New York and London. 1956. Price $9.75.

The publishing of volume 1 of "Progress in Hematology" initiates a periodic survey of the advancing frontiers of hematology. The Editor has designed it to acquaint the clinical and investigative worker with the progress in this rapidly expanding field. The contributors were selected because of their close participation in, and familiarity with, the activities in their chosen field.

Sixteen topics have been chosen. In general each subject has a carefully prepared historical review followed by a detailed analysis of current thinking and results in the field, followed by an extensive bibliography. The topics will be noted in their order of appearance: 1. Gastric intrinsic factor and vitamin B_{12} interrelationships; 2. Parenterally administered iron in the treatment of hypochromic anemia; 3. Exchange transfusion as a therapeutic measure with special reference to its use in erythroblastosis fetalis; 4. The lifespan of erythrocytes and their posttransfusion survival; 5. Abnormal hemoglobins; 6. Radioactive colloidal gold in the treatment of severe acquired hemolytic anemia refractory to splenectomy; 7. Radioactive phosphorus in the treatment of primary polycythemia (vera); 8. The autoimmune thrombocytopenias; 9. Guiding principles in the surgery of hemophilic patients; 10. Mechanisms of production of acute fibrinogen deficiencies; 11. Local environmental factors affecting hemostasis in bleeding from the upper gastrointestinal tract; 12. Systemic lupus erythematosus and the blood; 13. Chemotherapy of human leukemia; 14. The biochemistry and enzymatic activities of leukocytes in health and disease; 15. Hematologic recovery from irradiation injury; and 16. Agammaglobulinemia—congenital, acquired and transient forms. Space does not permit review of each paper.

The titles speak for themselves. They all are excellent sources of reference. They have been prepared in an unbiased manner and so present all aspects of the problems concerned.

It is the feeling of this reviewer that this volume will be of immeasurable value to the internist and surgeon as well as to the hematologist. It is hoped that it sets a precedent and that it will initiate an annual review of the progress in hematology.

LT. COL. JOS. H. AKEROYD, MSC, USA

THE MORPHOLOGY OF HUMAN BLOOD CELLS. By L. W. Diggs, M.A., M.D., Professor of Medicine and Director of Medical Laboratories, University of Tennessee and City of Memphis Hospitals; Dorothy Sturm, Instructor, Memphis Academy of Arts; and Ann Bell, B.A., Instructor in Medicine, University of Tennessee. 181 pages, 54 figures, 31 plates. W. B. Saunders Company, Philadelphia and London. 1956. Price $12.00.

In the preface of this book the principal author writes "This Atlas is written primarily for medical students and student technologists who for the first time are learning about the morphology of normal and pathological cells, for medical technologists who daily examine blood smears in physicians' offices, clinics and hospitals, and for physicians who supervise laboratories." It is the opinion of this reviewer that the authors have fallen far short of their objective.

The color plates reflect the artist's conception of the morphological appearance of human blood cells as seen by an artist and not a hematologist. The fine structural detail needed to characterize morphologically any one cell and in particular young and pathological cells, is generally lacking. The plates lack written descriptive detail as to why the illustrated cells are what they are named. This is extremely important and desirable, especially when the illustrated cells represent a composite picture.

The text is heterogeneously arranged and much space is devoted to cellular elements only occasionally seen. Much of the description of the various types of cells, and in particular the immature forms, lacks crispness and character. Such word pictures plus

the artist's drawings would make morphologic hematology difficult for the medical student and student technologist, and would be of little value for reference by the trained technician and physician.

LT. COL. JOS. H. AKEROYD, MSC, USA

PHYSICAL DIAGNOSIS. 5th Ed. By Ralph H. Major, M.D., Professor of Medicine and the History of Medicine, The University of Kansas; and Mahlon H. Delp, M.D., Professor of Medicine, The University of Kansas. 358 pages, illustrated. W. B. Saunders Company, Philadelphia and London. 1956. Price $7.00.

This fifth edition of a book first published in 1937 continues the primary objective of teaching purely physical signs to medical students. This is not an exhaustive study of all physical signs and therefore not a reference book to the graduate student; however, it most certainly could advantageously be read by the busy practitioner. This is especially true because it contains many signs which are generously illustrated and are infrequently seen nowadays.

One of the interesting facets of this book is the liberal reference to classic descriptions. These are not only of historical interest, but also clarify various interpretations of these original masterpieces found in different books at present.

This is a basic textbook for all medical students and should be re-read by all interns.

CAPT. L. J. POPE, MC, USN

HISTAMINE. A Ciba Symposium. Edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch. and Cecilia M. O'Connor, B.Sc. 472 pages, illustrated. Little Brown and Company, Boston, 1956. Price $9.00.

This is a Ciba Foundation Symposium jointly with the Physiological Society and the British Pharmacological Society. The Ciba Foundation is an international center established as an educational and scientific charity under the laws of England. It organizes and sponsors international conferences in conjunction with the Institut National d'Hygiène of France, encourages fundamental research in the biosciences and promotes international cooperation in scientific research.

Prominent research workers from various countries and in different scientific disciplines are invited to attend the Symposia which are of necessity strictly limited in attendance in order to obtain a free conversational manner of discussion. Because many workers interested and active in the subjects under discussion can not be invited to attend the symposia or colloquia, the proceedings of these conferences are published with a minimum of editorial supervision in order that these scientific reports and deliberations may be made generally available.

The present volume is devoted to recent and current studies on histamine. It is divided into two parts: the first reports the colloquia of the Physiological and Pharmacological Societies at the Wellcome Foundation, while the second records the symposium at the Ciba Foundation. The entire volume is dedicated to Sir Henry Dale.

The book is devoted to a very minute discussion of the occurrences of histamine in the body, factors which induce its release and the metabolic fate of this amine. There are some 32 contributors to the symposium, including Sir Henry Dale of the Wellcome Trust. They have compiled their physiological and pharmacological experimental data on histamine primarily for posterity and for other physiologists and pharmacologists. The majority of the presentation revolves around the presence or absence of histamine in various animal tissues and its quantitative determination in visceral homogenates.

The mode of action of histamine is not even discussed and only ten pages are devoted to the histamine antagonists, better known as the "antihistamines." Hence, this reviewer finds the clinical application of this fundamental research both difficult and obscure, undoubtedly due to the fact that he is neither a physiologist nor a pharmacologist, nor yet a "histaminologist"—perish the thought! Conversely, the participants in this symposium apparently either have no concept of or are completely disinterested in the clinical application of basic, scientific research.

Yet, the proof of the pudding is in the eating and without adequate "nutrition" in the clinical sciences both the patient and his practicing physician will suffer from inanition. Since this book can not be considered even a clinical aperitif, it belongs on the reference shelf of the basic science library where it will serve silently as a reference source for other basic scientists. It has little practical application and no intellectual impact for the practitioner of clinical medicine in general nor for the active military medical officer in particular.

CAPT. C. C. SHAW, MC, USN

TREATMENT OF HEART DISEASE. By Harry Gross, M.D., F.A.C.P., Ass't Clinical Professor of Medicine, Columbia University College of Physicians and Surgeons; and Abraham Jezer, M.D., Attending Physician, the Montefiore Hospital. 549 pages, illustrated. W. B. Saunders Company, Philadelphia and London. 1956. Price $13.00.

The treatment of heart disease as presented by the authors is a presentation of therapy in heart disease based on sound physiological principles. This is a refreshing innovation and usually is not to be found in a treatise on therapy.

The work is divided into seven parts and an appendix. Part I covers "The Basic Mechanisms of Cardiac Symptoms and their Management." Included in this section are excellent discussions on digitalis, quinidine, arrhythmias, congestive heart failure and diet in heart disease. Part II is devoted to the discussion of "Hypertensive Heart Disease and Arteriosclerotic Heart Disease." Part III covers the "Diseases of the Heart Secondary to Inflammation." Part IV is devoted to "Congenital Heart Disease." "Surgery in the Cardiac Patient" is covered in Part V. Part VI is devoted to the "Diseases of the Heart Secondary to Metabolic Disorders." "The Emotions, Adjustments, and Rehabilitation in Heart Disease," including the "Appendix," is handled most adequately in Part VII. The appendix is devoted to a discussion of diets, menus, and tables of sodium and potassium content.

This work is a new approach to an otherwise dry subject. Cardiac therapy which, in the past, was based largely on subjective and objective symptoms, in this treatise, is based on the pathologic or physiologic basis of the disease. In each section this approach in the study of the diseased heart is clearly and fully exemplified. The various laboratory procedures which are of value in the development of the diagnosis are discussed.

An attempt by many reviewers to select an outstanding section of chapter for discussion is usually not too difficult. This, however, on the contrary, was not so for this reviewer, as each section, and even each chapter is equally worthwhile, informative and deserves recognition for the place it occupies in the format. A full index follows at the close of the work.

The work is documented by a large series of references at the end of the chapters. An element of the personal touch has been developed by the authors, i.e., references ordinarily are referred to simply by number—in this work are referred to by "(see reference—giving the number)." This innovation impressed your reviewer sufficiently to make mention of it in the review.

The book should receive a most hearty reception by physicians treating patients in which heart disease is either the main element or the major complication of some other physiologic or pathologic condition.

COL. CHARLES R. MUELLER, USA, Ret.

PROGRESS IN PSYCHOTHERAPY. Edited by Frieda Fromm-Reichmann, M.D.; and J. L. Moreno, M.D. 352 pages. Grune & Stratton, New York and London. 1956. Price $8.50.

A symposium held at the 1954 meeting of the American Psychiatric Association is detailed here, with added reports from abroad, and chapters of comment by the editors.

Analytic theory is emphasized. Many varieties of Freudian and other psychotherapy are represented: collectivist, Marxist, reflexological, existential, religious, and their subdivisions. Group therapy, dramatic and other, claims a vigorous growth; more subjects are involved, more clinics are using it.

Reins on progress appear where Continental universities are slow to recognize psychoanalytic schools and scholars. A whole culture denies the existence of psychoneurosis as such, and approves only physicochemical treatment of its symptoms. One reporter quotes a claim that neither side in the Spanish Civil War suffered from neuroses until late, when these appeared among the losers.

Sure to be sought in such a book, and hard to find, are suggestions toward the selecting of a psychotherapy best suited to a given situation: a patient under ataractics, insulin, or E. C. T.; patients illustrating various dynamisms or character types.

A number of contributors deplore the scarcity of reports on results and relative merits. Nevertheless, to all psychotherapists as well as to cultural anthropologists this book offers unusual values.

COL. JAMES H. HUDDLESON, USAR, Ret.

A NEW PSYCHOTHERAPY IN SCHIZOPHRENIA. By Marguerite Sechehaye, Bürgholzlii Psychiatric Clinic, Switzerland; translated by Grace Rubin-Rabson, Ph.D. 199 pages. Grune and Stratton, New York and London. 1956. Price $4.50.

In this, the third of her books based on the intensive and successful psychotherapy

of a schizophrenic girl, Dr. Sechehaye has proved to a wide and respectful audience some further theoretical constructions. The collation of the clinical material, largely presented in the earlier works, was guided by therapeutic ideas of the students of Dr. Eugene Bleuler at the Bürgholzlii Psychiatric Clinic, Switzerland.

Schizophrenia is thought of as a loss of contact with the environment following severe early frustration of primary needs, clinically manifested by reactions to frustration, and maintained by various mechanisms and for various reasons.

Therapy, the means of re-establishing vital contact with the patient, is approached by "a constant and assiduous search for the essential aspirations of a being who since childhood has despairingly sought satisfaction." The symbolic realization of basic needs in therapy allows the disappearance of the manifestations dependent indirectly on the original frustration.

The chapters on schizophrenic thinking and the discussions of infralogical, presymbolic, and symbolic thought are in themselves valuable contributions to psychiatry and philosophy. Beyond abstractions, the dedication and patience of those rare humans who treat schizophrenic patients through months and years of painful effort must excite admiration in us all.

That this book has a pronounced European flavor and seems to have little awareness of the intensive psychotherapy of schizophrenics long in use by Dr. Fromm-Reichmann, et al. in the United States, does not damage it at all. It is rather an independent confirmation of concepts of the psychodynamics and psychotherapy of this grave illness which are forming in many of the clinics of the world. A bonus treasure in this book is the clear statement of existential philosophy and its influence on psychiatry and psychoanalysis in Europe.

CDR. THOMAS H. LEWIS, MC, USN

HUMAN OVULATION AND FERTILITY. Edmond J. Farris, Ph.D., Executive Director, Associate Member, The Wistar Institute of Anatomy and Biology. 159 pages. J. B. Lippincott Company, Philadelphia and Montreal. 1956. Price $6.50.

The primary purpose of the author in this book is to present the results of a decade of experiment on basic problems of human ovulation, and the practical application of some of these results.

Dr. Farris presents his rat hyperemia test, which can be easily employed by any general practitioner to determine the time of ovulation. This test is considered highly accurate in its results. The pregnancy test recommended will provide very satisfactory results with a minimum of equipment and expenditure of time. Accurate results can be obtained as early as the thirtieth day.

The final chapter, "Information of Value to the Barren Couple," contains practical data and remarks useful to physicians counseling infertile patients.

"Human Ovulation and Fertility" should be a very useful book to the clinicians in the management of the problems of the childless couple, as it is a concise and authoritative volume on the subject matter concerned.

COL. JOHN W. DARROUGH, MC, USAR

J.A.M.A. QUERIES AND MINOR NOTES, 1956. Published for the American Medical Association. 334 pages. The C. V. Mosby Company, St. Louis. 1956. Price $5.50.

This book contains hundreds of well selected Queries with authoritative answers, taken from Journals of the American Medical Association during the 12 month period ending June 1955. "Queries and Minor Notes" was formerly the "Questions and Answers" section of the Journal.

Subject material is arranged according to the Standard Nomenclature of Diseases and Operations in 12 chapters according to the ten body systems. One chapter pertains to "Body as a Whole" queries and one deals with "Miscellaneous" questions. In many instances queries have two or more answers by different consultants. Answers are clear, concise and practical. Much invaluable information is contained herein that would not be found in print elsewhere, certainly not in the usual texts or medical reference works. Most answers reflect a common sense approach obviously based upon extensive experience and detailed knowledge on the part of the answering authority or consultant.

Highly recommended as a practical volume for study or teaching aid, or as a reference work, for general practitioners, specialists, teachers or students of medicine.

COL. H. P. MARVIN, USA, RET.

J.A.M.A. CLINICAL ABSTRACTS OF DIAGNOSIS AND TREATMENT. American Medical Association. 661 pages (with index of subjects). Intercontinental Medical Book Corporation with Grune & Stratton, Inc., New York and London, 1956. Price $5.50.

The purpose of this book is to present

practical, clinical abstracts of diagnosis and treatment based on a current review of world medical literature. This colossal task has been most ably performed by Dr. Noah D. Fabricant, Editorial Associate in charge of the section on "Medical Literature Abstracts" of the Journal of the American Medical Association. These abstracts must represent a tremendous amount of reading of more than 1,200 journals in a multitude of languages. Indeed, the field of modern medical literature is so vast that it is impossible for any one individual to encompass it or even for the busy practitioner to determine his own reading requirements. The latter has been done for and continues to the great benefit of the general practitioner and specialist alike by virture of the clinical abstracts published each week in the Journal of the American Medical Association.

The present volume summarizes diagnosis and treatment with emphasis on the latest developments in clinical practice, bedside therapy and laboratory procedures under the following headings: Digestive, Respiratory, Cardiovascular, Urinary, Reproductive, and Endocrine Systems; Bones, Joints, and Connective Tissue; Blood and Lymphatic System; Skin; Nervous System; Eye, Ear, Nose, and Throat; Metabolism; Poisonings; Infections.

By means of the subject index, specific information may be rapidly located and readily absorbed. If the abstract presents "a smaller quantity containing the virtue of the greater," the reader may then determine whether the original article warrants thorough study. In a sense, this volume of abstracts is an epitome of modern medicine. It is an excellent companion volume for "1956 Medical Progress" which is a systematized review of medical and surgical advances during 1955.

CAPT. CHRISTOPHER C. SHAW, MC, USN

PEACEFUL USES OF ATOMIC ENERGY. Proceedings of the International Conference in Geneva, August 1955. Vol. 10. Radioactive Isotopes and Nuclear Radiations in Medicine. 544 pages. Columbia University Press, New York. 1956. Price $8.00.

This volume includes the papers and discussions related to clinical medicine and medical research and extends into the field of high voltage particle accelerators. The areas covered are wide and the book constitutes a veritable gold mine of information. Such is the amount of material that it would be impractical to evaluate each contribution here. Instead, a few gleanings which appear of major interest and concern will be offered.

First, there is much material describing and evaluating the isotopes in general clinical use. These papers largely confirm current clinical impressions.

A more recent innovation, that of employing nylon ribbon containing radioactive isotopes for attacking tumors, is described in detail by U. K. Henschke of this country. Ir 192 (Iridium) in the form of seeds is favored by the author. This isotope is a beta, gamma emitter with a half life of 74.7 days. Some excellent results are recorded.

The use of radioactive colloids such as Au 198, chromic phosphate (P 32), Y 90 and Lum 177 are extensively considered by J. H. Muller of Switzerland, A. Chevalier and C. Burg of France and P. F. Hahn of the Cancer Research Laboratories, Nashville, Tenn.

Teletherapy by means of radioactive isotopes, notably Co 60, is well covered principally by Marshall Brucer of the Oak Ridge Institute of Nuclear Studies; and speaking of Co 60, it is interesting to record that A. V. Kozlova of the U.S.S.R. reports wide use of that isotope interstitially and also in teletherapy.

In addition to papers on isotope teletherapy, there are some excellent presentations on particle accelerators.

Lee Farr and associates from the Brookhaven National Laboratory discuss their work on neutron capture therapy.

In more basic research, progress is recorded in the study of the fundamental mechanism of carcinogenesis, employing C 14 labeled carcinogens. In addition, numerous phases of metabolism and pathogeneses are being studied and a continued good harvest can be expected. Articles cover dental problems, water metabolism, tuberculosis, vitamin B_{12} deficiencies, biochemistry of muscles, leprosy, hypnotics, amino acid metabolism, lipoproteins, anti-cancer agents and various other matters.

Much more might well be written but it seems time to stop with the hope that the scope and importance of the volume have been sufficiently indicated. It remains only to say that this book should prove helpful to all seriously concerned with medical aspects of radiation, and that it is virtually indispensable in teaching and research institutions.

REAR ADM. CHAS. F. BEHRENS, USN, RET.

NEW BOOKS

Fractures, Dislocations, and Sprains, 6th ed., by John A. Key, B.S., M.D., F.A.C.S. and H. Earle Conwell, M.D., F.A.C.S. The C. V. Mosby Co., St. Louis, Mo. Price $20.00.

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The Merck Manual, 9th ed. Merck & Co., Inc., Rahway, N.J. Regular Edition $6.75. De Luxe Edition $9.00.

Practical Pediatric Dermatology, by Morris Leider, M.D. The C. V. Mosby Co., St. Louis, Mo. Price $10.00.

Home Health Emergencies—A Guide to Home Nursing and First Aid in Family Health Emergencies. Equitable Life Assurance Society, Bureau of Public Health, 393 Seventh Ave., New York 1, N.Y. Available on individual request without charge.

Handbook of Pediatric Medical Emergencies, 2nd ed. by Adolph G. DeSanctis, M.D. with the collaboration of Charles Varga, M.D. and ten contributors. The C. V. Mosby Co., St. Louis, Mo. Price $6.25.

Physiology of the Ocular and Cerebrospinal Fluids, Hugh Davson, D.Sc. Little, Brown & Co., Boston 6, Mass. Price $14.00.

Paper Electrophoresis, Ciba Foundation Symposium, Editors G. E. W. Wolstenholme, and Elaine C. P. Millar. Medical Book Dept., Little, Brown & Co., Boston, Mass. Price $6.75.

Bone Structure and Metabolism, Ciba Foundation Symposium, editors G. E. W. Wolstenholme and Cecilia M. O'Connor. Medical Book Dept., Little, Brown & Co., Boston, Mass. Price $8.00.

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Ocular Surgery, by H. Arruga, M.D., 2d English edition translated from the 4th Spanish edition by Michael J. Hogan, M.D. and Luis E. Chaparro, M.D. McGraw-Hill Book Co., Inc., New York, N.Y. Price $48.00.

Operative Surgery, Vol. 2, Abdomen (Completion) edited by Charles Rob, M.C. and Rodney Smith, M.S. F. A. Davis Co., Philadelphia, Pa.

Technical Methods and Procedures of the American Association of Blood Banks, Revised Edition 1956. Burgess Publishing Co., Minneapolis, Minn. Price $3.00.

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Care of the Long-Term Patient, Harvard University Press, Cambridge, Mass. Price $8.50.

Rehabilitation Literature 1950-1955, compiled by Earl C. Graham, Librarian and Marjorie M. Mullen, Asst. Librarian, Natl. Soc. for Crippled Children and Adults. McGraw-Hill Book Co., Inc. New York, N.Y. Price $13.00.

Low-Fat Cookery, by Evelyn S. Stead and Gloria K. Warren. McGraw-Hill Book Co., New York, N.Y. Price $3.95.

The Sir Henry Wellcome Medal and Prize

COMPETITION FOR 1957

THE competition is open to all medical department officers, former such officers, of the Army, Navy, Air Force, Public Health Service, Veterans Administration, The National Guard and the Reserves of the United States, commissioned officers of foreign military services, and all members of the Association, except that no person shall be eligible for a second award of this medal and prize and no paper previously published will be accepted.

The award for 1957, a medal, a scroll, and a cash prize of $500, will be given for the paper selected by a committee composed of the Association's vice-presidents which reports on the most useful original investigation in the field of military medicine. The widest latitude is given this competition, so that it may be open to all components of the membership of the Association. Appropriate subjects may be found in the theory and practice of medicine, dentistry, veterinary medicine, nursing and sanitation. The material presented may be the result of laboratory work or of field experience. Certain weight will be given to the amount and quality of the original work involved, but relative value to military medicine as a whole will be the determining factor.

Each competitor must furnish six copies of his paper which must not be signed with the true name of the author, but are to be identified by a *nom de plume* or distinctive device. These must be forwarded to the Secretary of the Association of Military Surgeons of the United States, Suite 718, 1726 Eye St. N.W., Washington 6, D.C., so as to arrive at a date not later than 1 July 1957, and must be accompanied by a sealed envelope marked on the outside with the fictitious name or device assumed by the writer and enclosing his true name, title and address. The length of the essays is fixed between a maximum of 10,000 words and a minimum of 3000 words. After the winning paper has been selected the envelope accompanying the winning essay or report will be opened by the Secretary of the Association and the name of the successful contestant announced by him. The winning essay or report becomes the property of the Association, and will be published in MILITARY MEDICINE. Should the Board of Award see fit to designate any paper for "first honorable mention" the Executive Council may award the writer life membership in The Association of Military Surgeons, and his essay will then also become the property of the Association.